TECHNOLOGY REVIEW

April 1956

technology
review
Published by MIT

CRYSTAL FILTERS

Crystal Filter
Type 44F

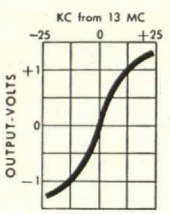
Crystal Discriminator
Type WB

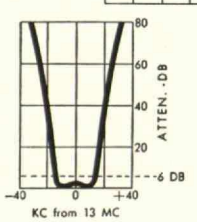
for FM Reception by HYCON EASTERN

Through the use of Piezoelectric resonators, filters are now available with extremely high selectivity at frequencies which eliminate the need for multiple conversions in VHF and UHF f-m receivers. The low insertion loss, linear transfer characteristic and non-microphonic quality of these filters permit their location at any point of low signal level such as between the mixer and the i-f amplifier. Using the Hycon Eastern Crystal Discriminator, Type WB, in combination with Crystal Filter Type 44F completely eliminates the need for any lower intermediate frequency. These filters can be produced on short notice in large or small quantities to meet *exact* performance requirements.

Write for Crystal Filter Bulletin

- ***SMALL SIZE***
- ***HIGH SELECTIVITY***
- ***LOW INSERTION LOSS***
- ***OPERATING TEMPERATURE: −55°C. TO +85°C.***
- ***EXTREME STABILITY WITH VARIATIONS IN TEMPERATURE. FREQUENCY SHIFT LESS THAN ±.005% TOTAL FROM −55°C. TO +85°C.***
- ***NON-MICROPHONIC***
- ***UNAFFECTED BY IMPEDANCE VARIATIONS COMMONLY ENCOUNTERED IN TRANSISTOR CIRCUITS***
- ***WORKS DIRECTLY TUBE-TO-TUBE OR TRANSISTOR-TO-TRANSISTOR WITH NO PADDING***
- ***HERMETICALLY SEALED, NO ALIGNMENT OR READJUSTMENT NECESSARY***
- ***VIBRATION AND SHOCK PER MIL-E-5422***





ELECTRICAL SPECIFICATIONS

Center Frequency 13 Mc (Available 10-20 Mc)
Bandwidth at 6 db Attenuation: 30 Kc (Available with 20-50 Kc Bandwidth)
Shape Factor: $\frac{\text{60 db Bandwidth}}{\text{6 db Bandwidth}} = \frac{1.7}{1}$ Maximum
Power Insertion Loss: 6db Maximum
Passband Response Variation: ± 1 db Maximum
Ultimate Attenuation: 80 db Minimum
Center Frequency Shift: ± 1 Kc

We invite your inquiry for ***any*** *Crystal Filter application in the 10 KC to 20 MC Range*

HYCON EASTERN, INC.

COMMUNICATION FILTER DIVISION

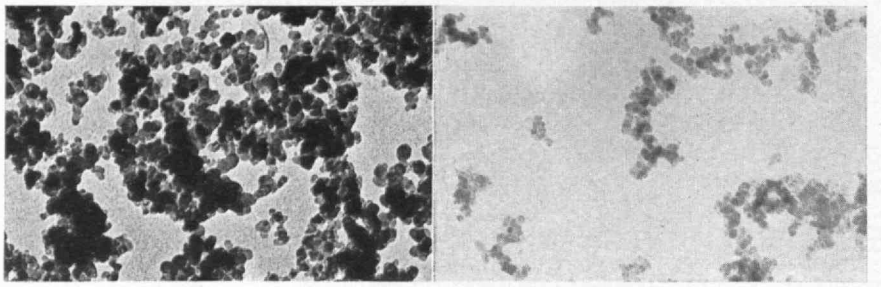
1360 Soldiers Field Road Dept. H-4 Boston 35, Massachusetts

Affiliated with HYCON MFG. COMPANY, Pasadena, California

THE TECHNOLOGY REVIEW, April, 1956, Vol. LVIII, No. 6. Published monthly from November to July inclusive at Emmett Street, Bristol, Conn. Publication date: twenty-seventh of the month preceding date of issue. Annual subscription $4.00; Canadian and Foreign subscriptions, $4.50. Entered as second-class matter December 23, 1949, at the Post Office, at Bristol, Conn., under the Act of March 3, 1879.

And NOW... **CABOT Cab-o-sil®**

The **SAF** *of the Silica Pigments*



Electron Micrograph of Vulcan 9 (SAF) Carbon Black at 50,000 X

Electron Micrograph of Cab-o-sil Colloidal Silica at 50,000 X

1 micron

Cab-o-sil®, with a finer particle size (0.015-0.020 micron) than even the finest of rubber reinforcing carbon blacks (0.023 micron), has been called the SAF—Super Abrasion Furnace—pigment of the silica field. Cab-o-sil, unique in many respects, is manufactured by a flame process similar to that used for the highly reinforcing (SAF) carbon blacks, and not by an aqueous precipitation process. Fine particle size, with exceptionally high external surface area, results in remarkable stiffening of uncured stocks. Cab-o-sil's remarkable properties include

High Chemical Purity

Extremely Fine Particle Size

Enormous External Surface Area

Unusual Optical Properties

Clean White Color

Startling improvements in rubber—not possible with precipitated silicas, silica gels and aerogels—are realized with the use of only small quantities of Cab-o-sil. Improvements include

Outstanding Tensile Strength

High Elongation

Excellent Tear Resistance

Exceptional Hardness at Low Loadings

Minimum Cold Flow of Uncured Stocks

Good Dielectric Properties

Low Water and Moisture Absorption

TESTED and USED in

Butyl Rubber . . . 5-15 parts of Cab-o-sil per 100 parts of rubber improve the electrical, weather aging and mechanical properties. Due to the low water adsorption of Cab-o-sil, resistance to change of electrical properties after long periods of immersion is especially good. Low loadings can minimize cold flow while helping the extrudability of the stock.

GR-S . . . Light colored compounds containing 5-10 parts of Cab-o-sil and 100 parts of clay per 100 parts of rubber give excellent abrasion and tear resistance.

Neoprene Latex . . . 5-10 parts of Cab-o-sil per 100 parts of rubber substantially increase tensile and tear strength and abrasion resistance in neoprene latices. Dipping operations are more efficient due to reduced drainage time and increased stability of the filled latex. Dispersions of Cab-o-sil in neoprene latices used for dipping operations result in superior tear resistance, higher abrasion resistance and, by reducing drainage, permit the deposition of thicker films.

CHEMICAL and PHYSICAL PROPERTIES

Silica Content (Moisture-Free Basis)	*99.0 - 99.7%*
Free Moisture (105°C.)	*0.2 - 2.0%*
Ignition Loss (1000°C.)	*0.2 - 1.0%*
CaO, MgO	*0.00%*
Fe_2O_3	*0.004%*
Particle Size Range	*0.015 - 0.020 micron*
Surface Area (Nitrogen Adsorption)	*175 - 200 $m.^2/gm.$*
Specific Gravity	*2.1*
Color	*White*
Refractive Index	*1.55*
pH (10% Aqueous Dispersion)	*4.5 - 6.0*
Apparent Bulk Density (Compressed Grade)	*6.0 - 6.5 lbs./cu. ft.*

Cab-o-sil is available in commercial quantities. Send now for a free sample and the bulletins describing Cab-o-sil applications.

CABOT WHITE PIGMENTS DIVISION TR **GODFREY L. CABOT, INC.** 77 FRANKLIN ST., BOSTON 10, MASS.

Please send Cab-o-sil® sample and

- ☐ *Cab-o-sil in Rubber (#cmis-1)*
- ☐ *Aqueous Dispersions of Cab-o-sil (#cmis-2)*
- ☐ *General Properties, Functions and Uses (#cgen-1)*
- ☐ *Cab-o-sil in Plastics (#cpla-2)*

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TITLE_____

COMPANY_____

ADDRESS_____

To the man who intends to do creative engineering...

AIRESEARCH AIR DATA COMPUTER SYSTEM *integrates electronic, pneumatic and electrical components to automatically sense, measure and correct for all air conditions affecting flight.*

AiResearch is looking for your kind of engineer.

We have always been a pioneering company, constantly developing new products and searching out new and better ways of meeting the demands of modern civilization.

A sample of this ingenuity is our development of transducer-computer systems which simplify the job of flying. AiResearch also leads in the aircraft air-conditioning and pressurization fields. We are blazing the trail in overcoming the heat problem in jet flight. In the new, rapidly growing field of small turbomachinery we have more experience than all other companies combined. We produce more than 1000 different products, from unique air-valves that can operate under unprecedented temperature conditions to the most complicated complete systems. We work on the very frontier of present scientific knowledge.

That's why we need creative engineers . . . and appreciate them. You who qualify for an AiResearch position will receive stimulating assignments, utilize some of the finest research facilities in the country and be well rewarded financially.

Premium positions are now open for mechanical engineers ...electrical engineers...physicists...specialists in engineering mechanics...specialists in aerodynamics...electronics engineers ...aeronautical engineers.

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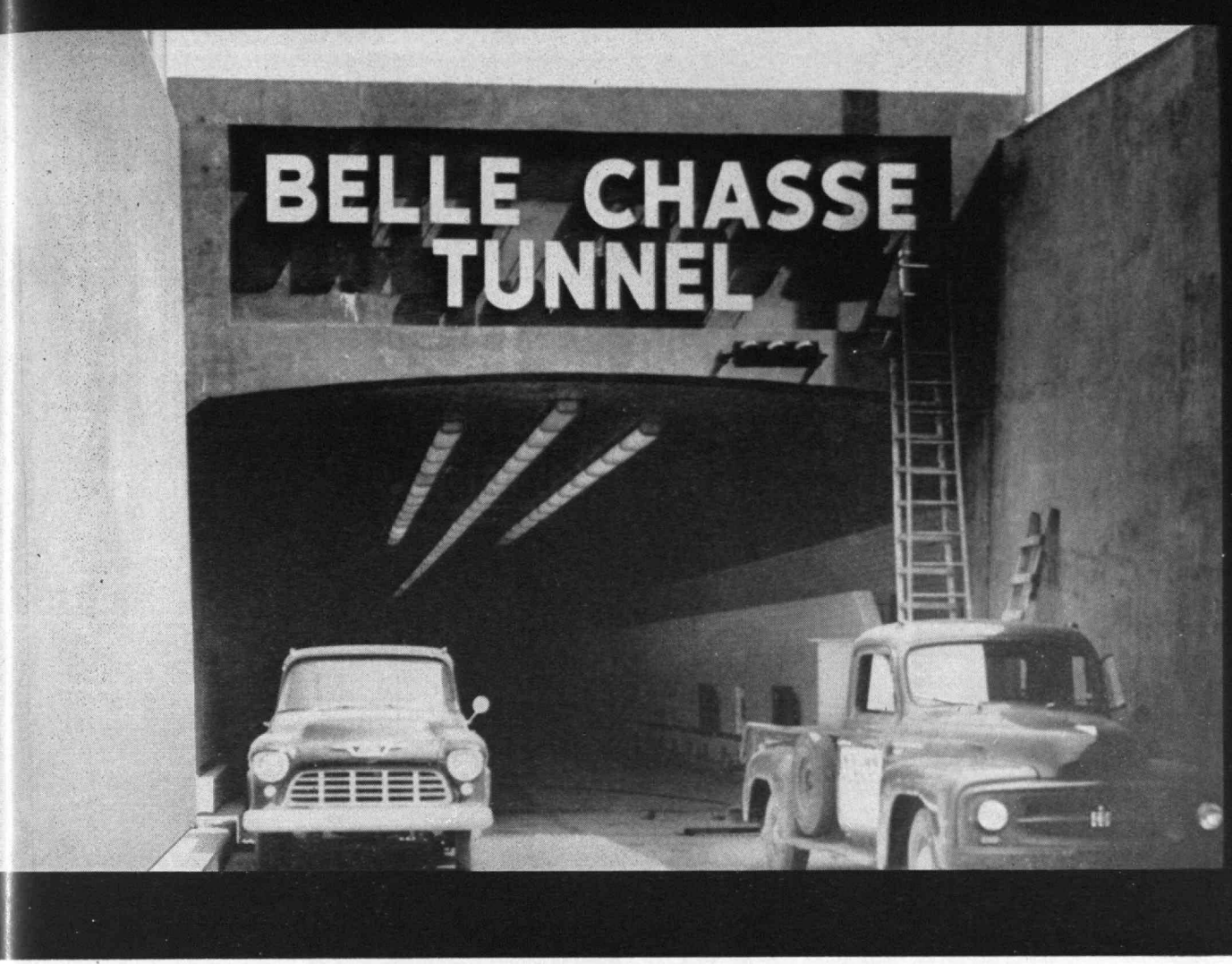
THE TABULAR VIEW

Science and the Educated Man. – No nation on earth, including the U.S.S.R., depends more completely upon science and technology to foster its economic and social system than does the United States. But, in the last few decades, increased dependence upon science has been accompanied by a marked deterioration of American public education in the hard core of scientific subjects. For example, *Scientific Personnel Resources*, issued by the National Science Foundation, reminds us that, between 1922 and 1949, the fraction of high school students studying physics dropped from 8.9 to 5.4 per cent; those taking algebra decreased from 40.2 to 26.8 per cent; and enrollment in geometry fell from 22.7 to 12.8 per cent. In "Science and the Educated Man" (page 285) JULIUS A. STRATTON, '23, Vice-president and Provost of M.I.T., reminds us that we can hardly hope to understand ourselves or our way of life if, as a nation, we remain ignorant of science. Dr. Stratton's message was originally delivered in New York on February 2 on the occasion of the 25th anniversary of the founding of the American Institute of Physics. Dr. Stratton (S.B., 1923; S.M., 1926; Sc.D., 1927) is the M.I.T. officer most directly concerned with the Institute's educational program. For this reason The Review is particularly happy to carry the Provost's message which disarms the highly vocal apologists for rigorous intellectual discipline and turns tables on the Caspar Milquetoasts of modern pedagogy.

Salt of the Earth. – HARRY W. VON LOESECKE, whose articles on "Food of our Colonial Forefathers" and "Dollars from Wastes" appeared in the May, 1955, and February, 1956, issues, respectively, pens "Salt of the Earth" (page 289) for this issue of The Review. Mr. von Loesecke is a graduate of Harvard University, and has been research chemist for a number of large manufacturing concerns.

(*Concluded on page 274*)



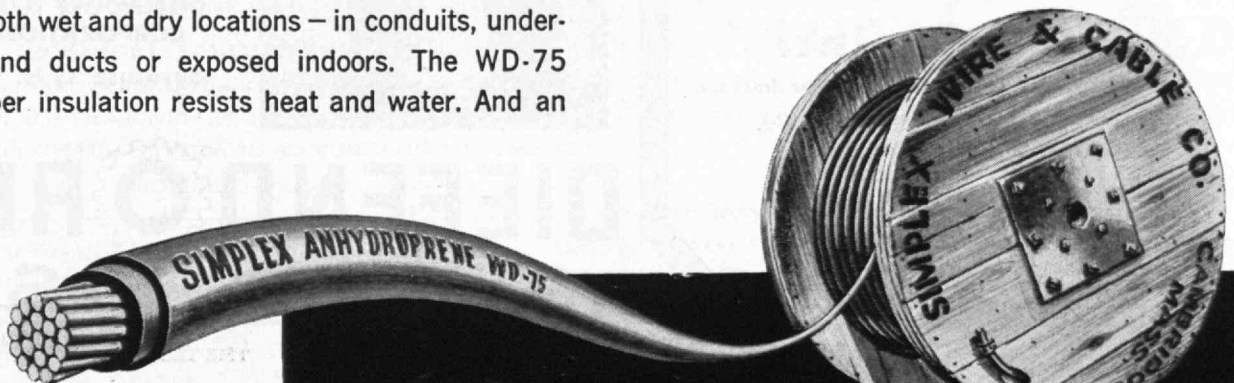
ELECTRICAL CONTRACTOR: Walter J. Barnes Electric Co., New Orleans, La. ENGINEERS: Palmer & Baker, Inc., Mobile, Alabama

Nearly 50 miles of ANHYDROPRENE WD-75 . . . pushing more power through less space!

ANHYDROPRENE WD-75, Simplex's general-purpose cable, is now being used in two great Southern construction projects: Louisiana's new Belle Chasse and Harvey Tunnels.

Made for 600-volt service, ANHYDROPRENE WD-75 was chosen because it squeezes through more amps in less space. Moreover, it can be used in both wet and dry locations – in conduits, underground ducts or exposed indoors. The WD-75 rubber insulation resists heat and water. And an exclusive Simplex compound makes its neoprene jacket extra tough.

Specify ANHYDROPRENE WD-75 wherever you need maximum power. These wires are available in many colors in most standard sizes. Write for Booklet No. 1018. **SIMPLEX WIRE & CABLE CO.,** 79 Sidney Street, Cambridge 39, Mass.

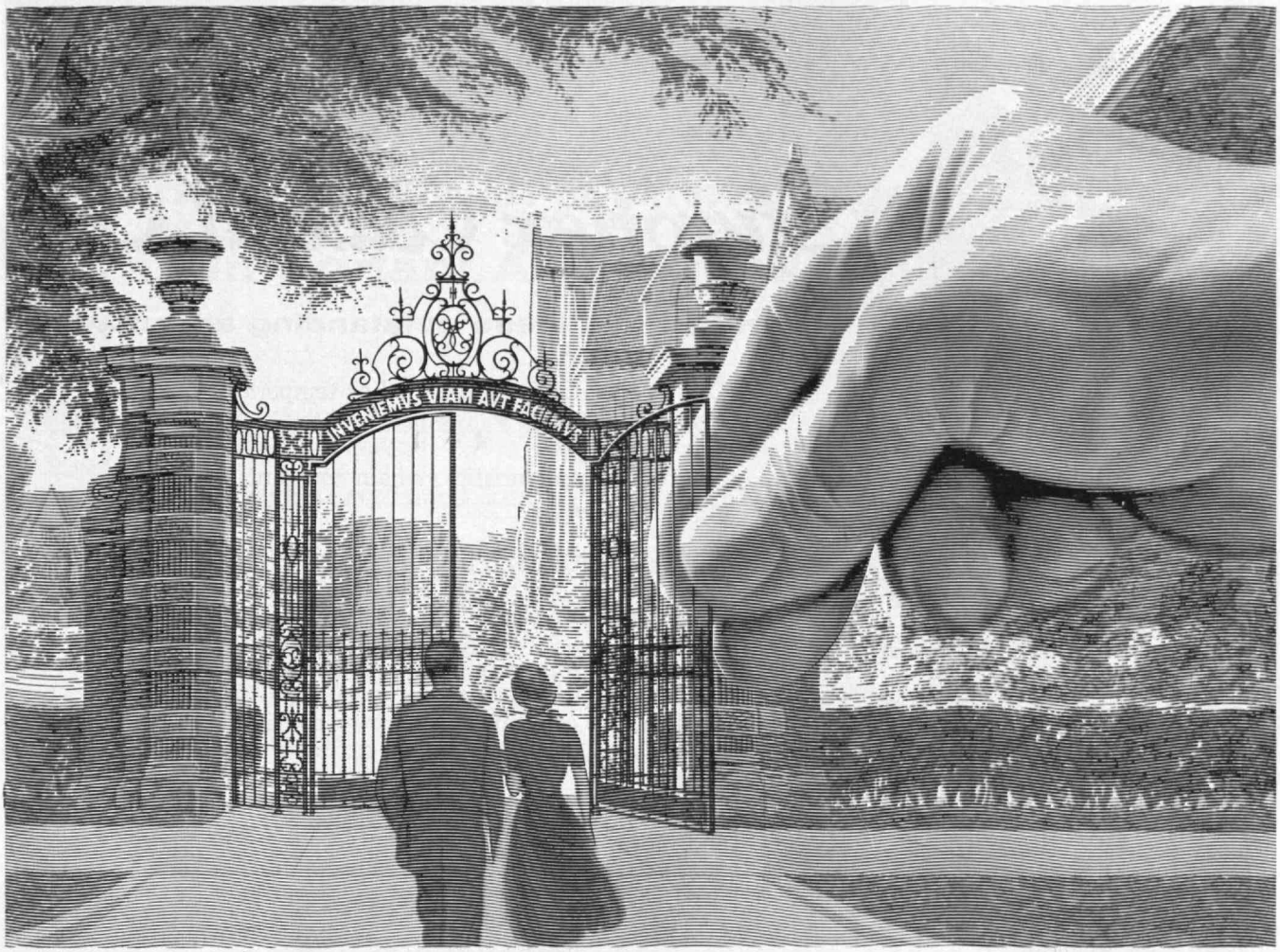


THE TABULAR VIEW

(Concluded from page 272)

Engineering and Scientific Education. – "Unless the number of our scientists and engineers increases at an accelerated rate, our economy will be in serious trouble for lack of technological nourishment, because our pool of graduate engineers is the source from which arise nearly all our technological advances." Such, in brief, is the essence of the article "Engineering and Scientific Education" (page 291) by REAR ADMIRAL H. G. RICKOVER, as condensed from a luncheon address sponsored by the Thomas Alva Edison Foundation, in East Orange, November 22, 1955. A graduate of the U.S. Naval Academy in 1922, Admiral Rickover is chief of Naval Reactors Branch, Division of Reactor Development of the U.S. Atomic Energy Commission, and assistant chief of the Bureau of Ships for Nuclear Propulsion.

Freedom and Probability. – Perpetual advance is the natural objective of life, and this will be most rapid if each individual has freedom to pursue his own bent, thereby providing greatest diversity. This message is contained in "Freedom and Probability" (page 293) by H. B. PHILLIPS, Professor of Mathematics, Emeritus, and occasional – but always welcome – contributor to The Review. Professor Phillips retired as Head of the M.I.T. Department of Mathematics in 1947.



INVENIEMUS VIAM AUT FACIEMUS: "We shall find a way or we shall make one."
—Memorial Gate, University of Pennsylvania

Investing in young America . . . a progress report

"To HELP deserving young men and women obtain a college education . . . to give financial support to a cross-section of American colleges . . ."

FOUR YEARS AGO, the Union Carbide Scholarship Plan was established with those objectives.

Today, the plan provides the complete cost of tuition and fees for 400 four-year scholarships at colleges and universities throughout the country. As an important part of their education, the scholars are encouraged to gain valuable experience in their chosen fields by obtaining jobs in industry during summer vacation.

50 TECHNICAL SCHOLARSHIPS are also available in specific fields of study. They cover the student's tuition and fees for the senior year. In addition, to assist graduate students and to support academic research, Union Carbide offers 66 fellowships and grants-in-aid to universities.

THE PEOPLE OF UNION CARBIDE regard these scholarships as an important contribution to the future and to two of America's priceless assets—its educational system . . . and its youth.

TO LEARN MORE *about the Union Carbide undergraduate scholarships and the colleges and universities in which they have been established, write for Scholarship Plan booklet X.*

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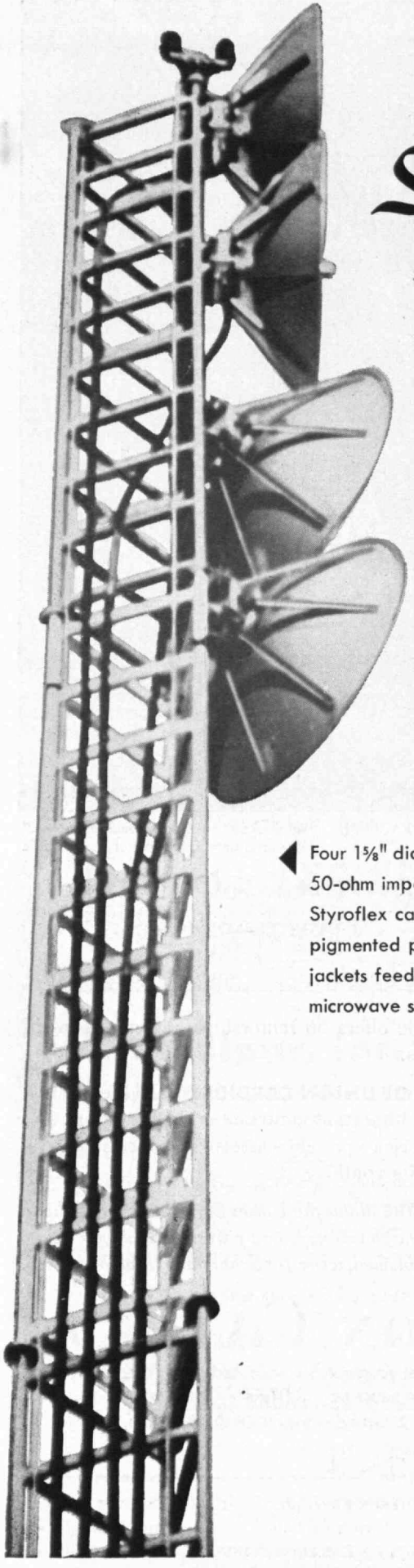


Styroflex Coaxial Cable

Styroflex has these outstanding advantages:

Can be installed and operated at temperatures down to *minus* 100 degrees Fahrenheit.

Electrical characteristics remain constant, regardless of years of service.

Low attenuation and low VSWR.

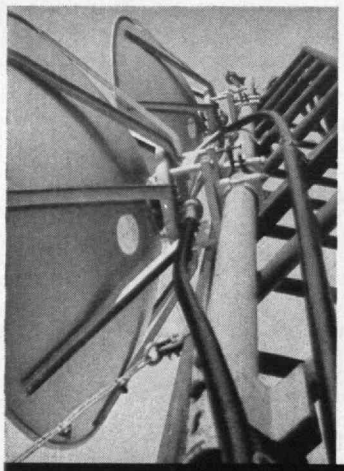
Designed and manufactured with instrument-like precision.

Unusually strong mechanical characteristics.

No joints or couplings necessary—continuous length from transmitter to antenna.

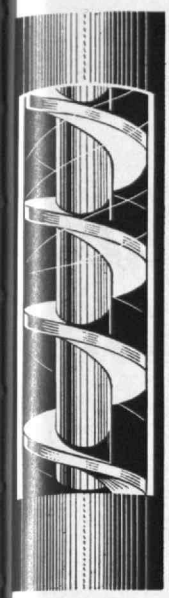
Ideal for remoting video circuits for both television and radar.

◀ Four 1⅝" diameter, 50-ohm impedance Styroflex cables with pigmented polyethylene jackets feed Alaskan microwave system.



Semi-flexible qualities of Styroflex make direct connections to parabolic antennas very simple.

Kellems Grips are used to provide positive support for Styroflex cables on tower.



Installed by U. S. Army Signal Corps in Important Alaskan Microwave System.

Styroflex coaxial cable's ability to operate under extreme climatic conditions is being dramatically demonstrated by the U. S. Army Signal Corps microwave system in Fairbanks, Alaska. Here—*where temperatures frequently drop as low as minus 60 degrees Fahrenheit*—the cables are operating successfully around the clock without interruption or failure.

Styroflex reel is loaded on truck for transportation to installation site.

Styroflex cables connect transmitters directly to roof-supported dishes.

U. S. Army Photographs

PHELPS DODGE COPPER PRODUCTS CORPORATION

300 PARK AVENUE, NEW YORK 22, N. Y.

Stronger on the inside! This jackhammer delivered over two million blows against this tire, but didn't break a single 3-T Nylon Cord.

NEW 3-T NYLON TUBELESS TIRE by GOODYEAR

Stops 24% quicker at 40 miles an hour!

Safer on the outside! You get up to 24% more stopping ability. See how this extra stopping power kept Goodyear Engineer Mel Wilson from harm, while the car with new tires having ordinary-type treads crashed into the dummy in its path.

Goodyear's new Nylon Custom Super-Cushions give you an extra margin of safety that can save a life!

This new Goodyear Nylon tire is standard equipment on some of America's finest new cars. It will fit the wheels of your car. Your nearby Goodyear dealer will buy all the unused mileage in your present tires. Goodyear, Akron 16, Ohio.

This new Twin-Grip tread design is also available in a tube-type Nylon Custom Super-Cushion.

MORE PEOPLE RIDE ON GOODYEAR TIRES THAN ON ANY OTHER KIND!

3-T NYLON CUSTOM TUBELESS SUPER-CUSHION by GOODYEAR

There's a Goodyear dealer near you. See him for better tire values . . . better tire care . . . convenient credit terms

Super-Cushion, T. M., The Goodyear Tire & Rubber Company, Akron, Ohio

THE TECHNOLOGY REVIEW

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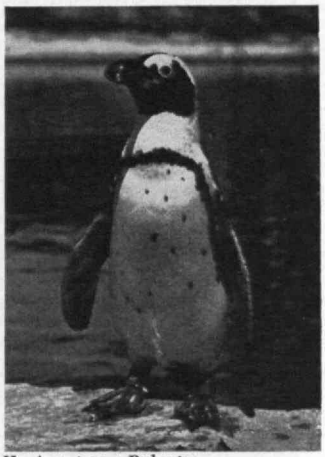

H. Armstrong Roberts
You mean, this affair is informal?

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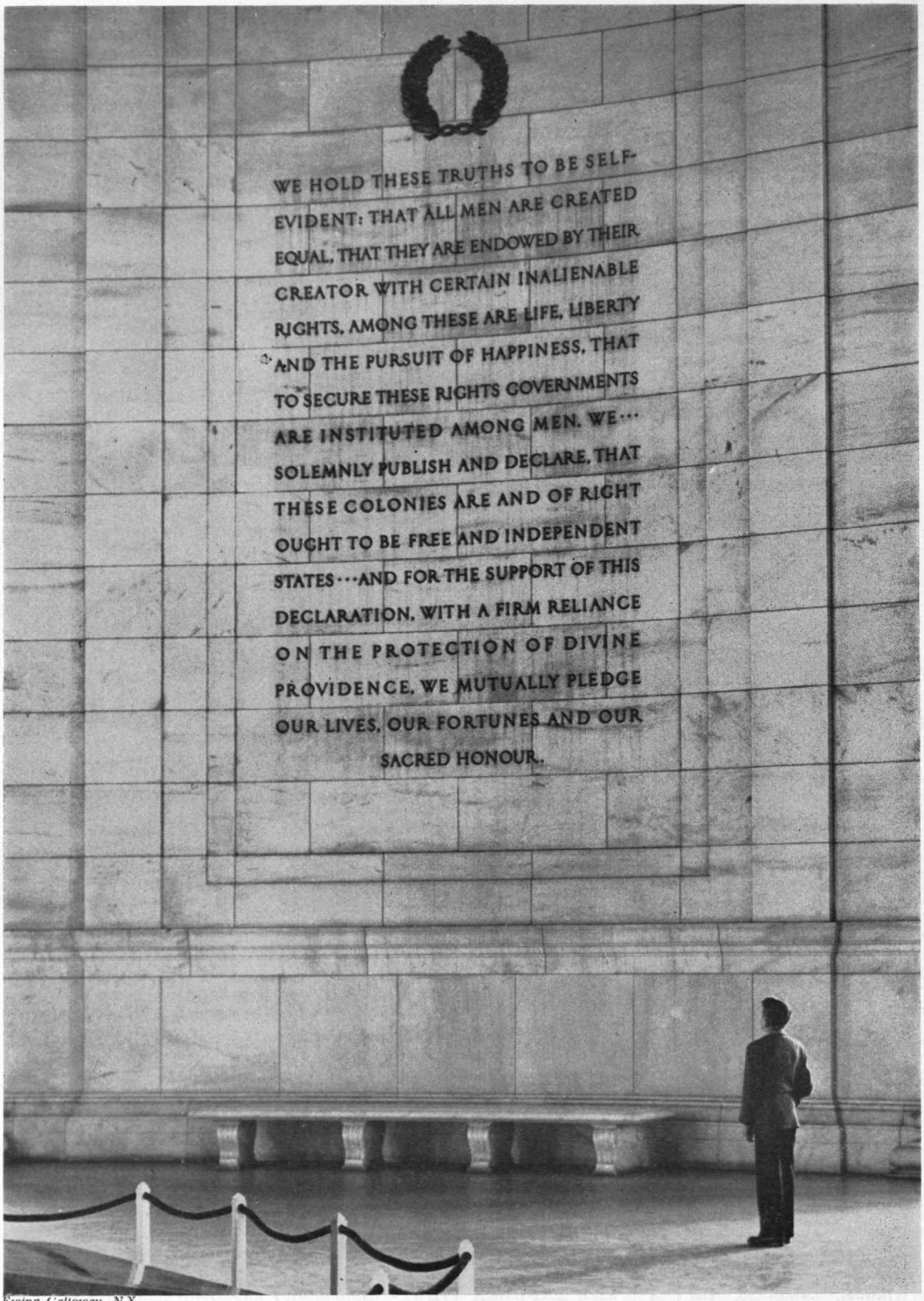


Ewing Galloway, N.Y.

Legacy from Thomas Jefferson (1743-1826)

Thomas Jefferson died on July 4, 1826 – the 50th anniversary of the adoption of the Declaration of Independence, a portion of which is inscribed above. For the epitaph on his tomb, he chose to be known as "author of the Declaration of American Independence, of the statute of Virginia for religious freedom, and father of the University of Virginia."

THE
TECHNOLOGY
REVIEW

Vol. 58, No. 6 April, 1956

The Trend of Affairs

In Good Time

In ordinary life, the accepted standard for the measurement of time is the mean solar day, whose value depends upon the average rate of rotation of the earth upon its axis. This day is divided into 24 equal intervals, or hours, which are divided into 60 equal intervals, or minutes, and these, in turn, are still further divided into 60 equal intervals called seconds. Since 24 and 60 are numbers exactly divisible by a reasonable number of integral factors, the day can be split into a large number of unit packages that are convenient for man's modern way of life.

But as the earth rotates on its axis, it also travels in an elliptical path about the sun, and a full circuit around the sun requires a time interval of one year. In terms of the mean solar day, the tropical year, upon which the return of the seasons depends, represents an interval equal to 365 days, 5 hours, 48 minutes, and 46 seconds, or 365.242199 . . . days. It is clear that the year is not made up of a convenient and integral number of mean solar days. The tropical year is about 46/190 — or a little less than one-quarter — of a day longer than the commonly accepted, but approximate, year of 365 days.

The fact that the Maker of the Universe did not see fit to use simple gear ratios in relating the earth's rotation on its own axis with its circuit about the sun has caused man no end of trouble in devising a suitable calendar by which he could reckon the seasons, religious observances, personal and public events and anniversaries, historical and church dates, and so on. If man's accounting of the days of the year are to keep pace with the seasons, his calendar must be devised so that, in the long run, the year is composed of something like 365¼ days.

Unfortunately, man must accept the fact that the number of days in a year is not exactly divisible by 4 quarters, 12 months, 52 weeks, or any other integral number of daily units by which fractions of a year are normally measured. Man can no more properly express the annual circuitation of the earth about the sun by an integral number of days than he can make π or ε come out to be a rational, whole number; nature simply does not make such things possible. Whatever methods man uses to relate the annual calendar with an integral number of mean solar days must be a compromise of one kind or another.

Throughout a sufficiently long period of time, there are many ways of effecting a compromise for squeezing approximately 365¼ days into the average year. Our present Gregorian calendar is of course one possible compromise, but it is not the most convenient one. It includes months with as few as 28 and as many as 31 days; it provides no simple or ready method for quickly determining, through unaided mental processes, future or past dates, nor does it lend itself well to modern needs of man.

There are other and better ways in which a year might be divided so as to simplify computation, and some of these are distinct improvements over the Gregorian proposal. In fact the present calendar is sufficiently cumbersome and awkward as to provide its own impetus for the adoption of a more logical arrangement of the days of the year. Certainly there is much to be said in favor of re-examining our present archaic system and replacing it with something more suitable to modern needs, much as the decimal system has been made legal in many parts of the world to replace other archaic and oddly related units of measurement.

The problem of calendar reform is largely one of selecting and adopting, through international agreement, that arrangement of days of the year that has the necessary precision which is most convenient and logical, and causes the least disruption to man's existing patterns of life. If a change is made in our present method of annual reckoning, that calendar should be selected which fits in most readily with today's needs of commerce, industry, and other human activities,

N.Y.D.	JANUARY							FEBRUARY							MARCH						
1st QUARTER	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
	1	2	3	4	5	6	7			1	2	3	4	5					1	2	3
	8	9	10	11	12	13	14	6	7	8	9	10	11	12	4	5	6	7	8	9	10
	15	16	17	18	19	20	21	13	14	15	16	17	18	19	11	12	13	14	15	16	17
	22	23	24	25	26	27	28	20	21	22	23	24	25	26	18	19	20	21	22	23	24
	29	30						27	28	29	30				25	26	27	28	29	30	31

	APRIL							MAY							JUNE						
2nd QUARTER	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
	1	2	3	4	5	6	7			1	2	3	4	5					1	2	3
	8	9	10	11	12	13	14	6	7	8	9	10	11	12	4	5	6	7	8	9	10
	15	16	17	18	19	20	21	13	14	15	16	17	18	19	11	12	13	14	15	16	17
	22	23	24	25	26	27	28	20	21	22	23	24	25	26	18	19	20	21	22	23	24
	29	30						27	28	29	30				25	26	27	28	29	30	31

L.Y.D.	JULY							AUGUST							SEPTEMBER						
3rd QUARTER	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
	1	2	3	4	5	6	7			1	2	3	4	5					1	2	3
	8	9	10	11	12	13	14	6	7	8	9	10	11	12	4	5	6	7	8	9	10
	15	16	17	18	19	20	21	13	14	15	16	17	18	19	11	12	13	14	15	16	17
	22	23	24	25	26	27	28	20	21	22	23	24	25	26	18	19	20	21	22	23	24
	29	30						27	28	29	30				25	26	27	28	29	30	31

	OCTOBER							NOVEMBER							DECEMBER						
4th QUARTER	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
	1	2	3	4	5	6	7			1	2	3	4	5					1	2	3
	8	9	10	11	12	13	14	6	7	8	9	10	11	12	4	5	6	7	8	9	10
	15	16	17	18	19	20	21	13	14	15	16	17	18	19	11	12	13	14	15	16	17
	22	23	24	25	26	27	28	20	21	22	23	24	25	26	18	19	20	21	22	23	24
	29	30						27	28	29	30				25	26	27	28	29	30	31

The proposal of Willard E. Edwards, '26, for a perpetual calendar is shown above. Each quarter is like any other quarter, and any month is like the corresponding month in any other quarter. New Year Day — an annual holiday, apart from the other days of the year — brings the days of the year to 365, and Leap Year Day — a holiday apart, once every four years — brings the average year to 365¼ days as required.

and which can be made acceptable to the largest number of segments of modern mankind with the least cost and confusion.

George Eastman was interested in calendar reform and proposed a calendar of 13 months of 28 days each. Although this form of calendar had the advantage of simplicity in determining the day for a given date in any month, it was not feasible for operations involving auditing, inventories, production, dividends, taxes, or other business affairs which are being computed on a quarterly basis with increasing frequency.

Another calendar, proposed by Willard E. Edwards, '26, who has devoted many years of study to calendar reform, provides for a calendar of 12 months of four equal quarters of 91 days each. In this proposal, the months of March, June, September, and December have 31 days, but all other months have 30 days. As thus accounted for, the year would have 364 days, but an additional day — New Year Day, a holiday — is inserted at the beginning of the year to bring the total to 365 days. The additional 46/190 of a day is accounted for by inserting a Leap Year Day — another holiday — between June 31 and July 1 for leap years. The method for determining leap years would be that now employed.*

* Leap years are those which are divisible exactly by four, except that the last year of a century becomes a leap year only if the number of the century is exactly divisible by four. By making the year 4000 and its multiples common years instead of leap years, the difference between calendar and astronomical reckoning becomes less than one day in 200 centuries.

The calendar proposed by Mr. Edwards is shown in the accompanying cut. As shown, the week begins on Monday but it could also begin on Sunday. It will be observed that each quarter is like every other quarter, that the arrangement of days in any month is the same as that of the corresponding month in any other quarter, and that all quarters have the same number of days.

New Year Day precedes Monday, January 1, as a holiday apart from the 364 days of the four quarters; it is the first day of each year and the third day of an annual three-day week end. Leap Year Day comes between June 31 and July 1 in leap years, as a second three-day week end holiday apart. These two Year Days (New Year Day and Leap Year Day) are definitely named and have a definite purpose. Considered apart from any week or month, they allow a calendar to become fixed and perpetual. This feature should have inestimable value in the business, educational, religious, and social world. Those who look upon Friday the 13th with misgivings, will find that this day does not occur in Mr. Edwards' Perpetual Calendar.

As a means for readily reconstructing his calendar, Mr. Edwards suggests the following:

> With a day apart, the year's begun,
> Followed by thirty, thirty, thirty-one,
> Months always start a certain way,
> On Monday, Wednesday, and Friday,
> Each quarter and each year the same,
> Is the Perpetual Calendar's aim.

But perhaps even this jingle is unnecessary, for the day of the week for any day in the year can be easily figured in a few seconds by remembering "30, 30, 31; Monday, Wednesday, Friday" as the number of days and the first weekday of each of the months in each quarter.

The calendar has been introduced at the 82d Congress of the United States, and has been offered to the United Nations for international adoption as the simplest and most practical 12-month fixed calendar thus far proposed. Incidentally, the topic of calendar reform is to come under consideration at the April, 1956, Session of the Economic and Social Council of the United Nations where substantial stimulus to international adoption could be achieved.

We can reform the calendar, and it is plain to see that everyone might benefit by such activity.

Let's Eat

All living things eat; indeed food is a central theme of life. Hence biologists of all sorts have long concerned themselves with the nutritive needs of their subjects; microbiologists have considered how much peptone should be present in nutrient broth to produce maximal growth of bacteria; husbandmen have given study to what proportion of hay to grains is best for cattle; nutritionists have sought to learn the optimal intake of beefsteak or potatoes to promote human well-being.

As both nutrition and chemistry have advanced through the years, it has become possible to determine the nutritive needs of various living things, not

crudely in terms of natural foods of complex and partly unknown chemical composition, such as those just mentioned, but precisely in terms of chemical compounds of fully known identity; in terms of substances such as amino acids, fatty acids, carbohydrates, minerals, and vitamins. When nutrient requirements are cast into such terms, there appears to be amazing similarity in the food needs of living organisms far apart on the developmental scale. Thus although bacteria will not eat hay or cattle peptone, when the total food needs of such diverse living things are expressed in terms of substances of known chemical composition, these requirements are similar.

Such observations have led to attempts to design a "universal diet," capable of sustaining all forms of life. These efforts have now met with marked success. One such diet consists of purified casein, corn oil, cornstarch, cellulose, sucrose, 15 different mineral salts, and 15 different vitamins. It may be argued that this mixture is not of strictly known chemical constitution, as the casein, corn oil, and cornstarch are of natural origin, and hence may contain as contaminants small quantities of unknown materials having nutrient properties. Highly purified substances were used.

The diet described has been found to be capable of sustaining a full gamut of living things extending from microbes to higher mammals, and including plant as well as animal species. Specifically this universal diet has been found to maintain — in a state of well-being — algae, bacteria, molds, yeasts, amoebae, monkeys, pigs, cats, dogs, rats, mice, rabbits, guinea pigs, opossums, chicks, goldfishes, cockroaches, snails, and tomato plants.

A universal diet is of value as a research tool. It is also of strong theoretical interest, as it sheds light on the nutritional evolution of various living forms extant today, and suggests a common origin of all forms of life.

Energetic

LIFE is a struggle for existence; and the struggle for existence has been characterized as a struggle for free energy available for work. For all animals, including man, energy for work comes from food energy, derived from solar energy captured by green plants, and incorporated into plant tissues that directly or indirectly serve as animal foods. Also involved in the energy budget of human beings is energy derived from the burning of fuels. Energy from this source influences the metabolism of mankind when it is used to heat dwellings, lowering the metabolic rate of the inhabitants and reducing their need for food energy.

It is of considerable interest to view the energy demands of animals in terms of the area of the earth's surface they occupy. As is widely known, the smaller a mammal, the greater its energy demands on a body weight basis. Thus the tiny long-tailed shrew, that weighs only three and a half grams, must eat continuously and consume several times its body weight in food each day in order to survive; it has the extraordinary metabolic rate of 1,800 kilogram calories per kilogram of body weight per day. (The comparable figure for the human being is only 35 kilogram calories per kilogram per day.) But in addition to being so tiny, the long-tailed shrew does not densely populate the woodlands it inhabits; it is estimated that these beasts are no more numerous in a typical forest than one in five acres. Therefore, despite its tremendous metabolic rate, the long-tailed shrew dissipates only about one and three-tenths kilogram calories per acre per day in a typical woodland environment. In contrast, the larger short-tailed shrew, that has a metabolic rate of only 600 kilogram calories per kilogram per day, is heavier — about 18 grams — and more numerous in woodlands—about four per acre. And so although this species lives at a metabolic rate only a third as intense as its long-tailed cousin, it dissipates much more energy on an area basis, some 43 kilogram calories per acre per day.

Taking the usual human egocentric standpoint, let us see how mankind fits into this picture. Before the coming of the white man, Indians dwelling in areas which are now the eastern United States were so scattered as to be responsible for dissipation of only about one and four-tenths kilogram calories per acre per day — about the same as the tiny long-tailed shrew. But today in the same area — for example, in contemporary Pennsylvania with a population of 0.3 person per acre — human beings metabolize about 750 kilogram calories per acre per day. This is an energy expenditure several times greater, on an area basis, than that of all of the common wild mammals in a typical woodland added together.

To get a true picture of human energy expenditure, however, we must consider the human practice of burning fuels. As noted, some of the energy so gained may serve to lessen human usage of food energy, although a great deal of it goes up the stack. If we make the bold guess that a ton of carbon is burned each year for each individual in the population, this would mean a drainage of an additional 6,000 kilogram calories per acre per day from areas populated like Pennsylvania. Hence the human being, in areas with population densities of this order, would be responsible for energy dissipation of about 6,750 kilogram calories per acre per day.

As there is a limit to the rate at which green plants can capture solar energy and make it available, one is led to wonder what the figures just cited mean in terms of an energy balance sheet. Before the coming of the white man to this country, the Indians, all of the animals, and all of the lower forms of life including micro-organisms, apparently lived well within the 16,000 kilogram calories per acre per day that plants in a typical forest can capture. With modern dense human populations, plus other forms of life, energy is dissipated at a far faster rate than woodlands capture it from the sun. The deficit comes in part from solar energy captured by plants in prehistoric times, and now burned as coal and petroleum; but mainly from intensive capture of solar energy by cultivated food plants, such as grains grown on farms. Geologists estimate that little energy is being stored in forests today; in other words there seems scant prospect that today's forests will ever yield petroleum or coal for coming generations. But any concern that may once have been held for the future of energy sources for mankind is needless now that the vast energies of atomic fission and atomic fusion have been tapped.

Character Display Tubes

THE rapidly expanding field of machine computation and the use of high-speed digital computers in large-scale control systems have created the need for means of displaying numbers and letters at rates compatible with the speed of computer performance. An obvious means for presenting such a display of characters is through the use of cathode-ray tubes similar to the picture tubes of television receivers. Ordinary cathode-ray tubes, however, are not readily adapted to the display of such characters, especially in small sizes. To meet this need, special types of tubes called Charactron (registered trade-mark of General Dynamics Corporation) and Typotron, have been developed at Lincoln Laboratory.

The research activities in the development of these tubes have been carried out by Franklin A. Rodgers, William L. Gardner, Patrick Youtz, '49, and Charles L. Corderman, '50, of the Lincoln Laboratory in cooperation with the Electron Tube Laboratory of Hughes Aircraft Company and the Charactron project formerly associated with Convair Manufacturing Company and now with Stromberg-Carlson Manufacturing Company. The work has been supported under Air Force contract AF 19–(122)–458.

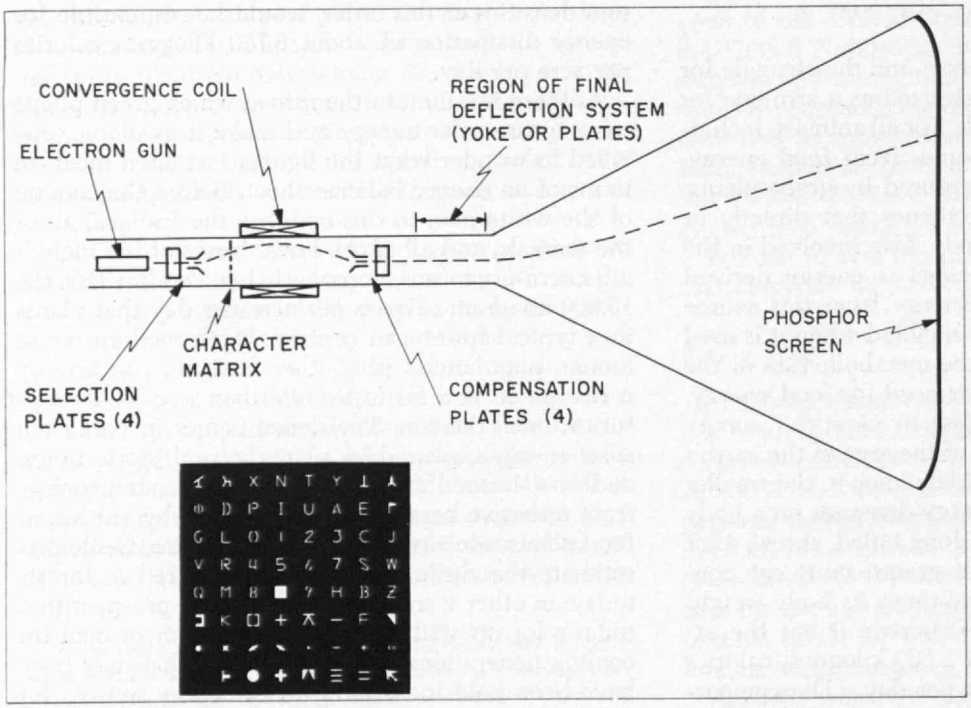
The essential features of a Charactron tube are shown below. An electron gun, such as might be used in an ordinary cathode-ray tube, directs an electron beam onto a selected area of a thin metal disc or character matrix. The defocused electron beam (which has a diameter sufficient to cover the largest single character) is deflected by four electrostatic selector plates. The function of these *selector plates* is to deflect the beam, of circular cross section, onto the desired single character of the matrix disc. The defocused electron beam is formed into the desired character as the beam is "extruded" through the selected character of the disc matrix. As indicated at the bottom of the page, the matrix has an arbitrary number of separate areas into each of which a desired letter, number, or other symbol has been formed as a stencil. Frequently provision is made for 64 characters arranged in eight rows and eight columns.

The formed electron beam then passes into the magnetic field set up by the *convergence coil* around the neck of the tube. For any character selected, this field acts to redirect the beam back toward the axis of the tube, so that it passes through the compensation plates. As the formed beam passes through the *compensation plates*, horizontal and vertical deflections are introduced, proportional to the particular character selected. In this manner, the beam from each character is redirected along the tube axis to compensate for the off-axis selection at the matrix. The beam then passes through the *final deflection system* so that the character selected may be positioned at any point on the face of the tube.

The Typotron (manufactured by Hughes Aircraft Co., Los Angeles, Calif.) is a character display tube similar to the Charactron in which a "writing" gun with a character matrix (see below) is combined with a direct view storage screen. In this tube, however, a second electron gun (not shown below) floods the entire surface of the storage screen which retains the displayed characters, indefinitely, until the surface is erased. It differs, in this respect, from the Charactron which depends upon the persistence characteristic of the phosphor for retention of the display. The resolution of the Typotron is limited by the mesh upon which the storage surface is deposited. Present Typotron tubes can display approximately 32 characters across the face of a five-inch tube.

Compared to standard cathode-ray tubes, Charactron-type operation over the same intensification period involves an exchange of brightness for resolution. The reduction in current-density to excite the Charactron phosphor is compensated for by the fact that the entire character is painted without waiting for a spot-focused beam to trace out a character shape or make multiple dots in the shape of a character.

For displays which are to be recorded, the inevitable trend is toward more data at higher speeds. Within the next few years, printing rates of 10^5 characters per second and linear densities of 150 characters per inch do not seem unreasonable. This would give a quarter of a million characters on a five-inch tube—equivalent to the number of characters on 10 pages of the Boston telephone book.



Cross section diagram of Charactron tube with essential operating elements indicated (above). The black square at the bottom shows the form of one possible matrix for character formation.

Science and the Educated Man

All the Outer Forms and Even the Inner Forces of Our Contemporary Civilization Are Molded and Controlled by Science and Technology; Yet We Have Failed to Make the Understanding of Science a Part of Our Common Culture

By JULIUS A. STRATTON

In the summer of 1900 the city of Paris celebrated the arrival of the Twentieth Century with a Great Exposition. That was a year of almost universal hope and confidence in the future, and accordingly the Exposition was directed toward a Golden Age of science and industry. Among the 39,000,000 visitors who passed by those exhibits was an American by the name of Henry Adams, and in a famous autobiography he has recorded his thoughts on this preview of things to come. Henry Adams was the product of a tradition of unity and stability. Under the conflicting forces of the Nineteenth Century he had seen that unity breaking up, and he was searching for what he called a dynamics of history that would anticipate the changing course of mankind. In the Gallery of Machinery at Paris he thought that at last he had found a solution in science.

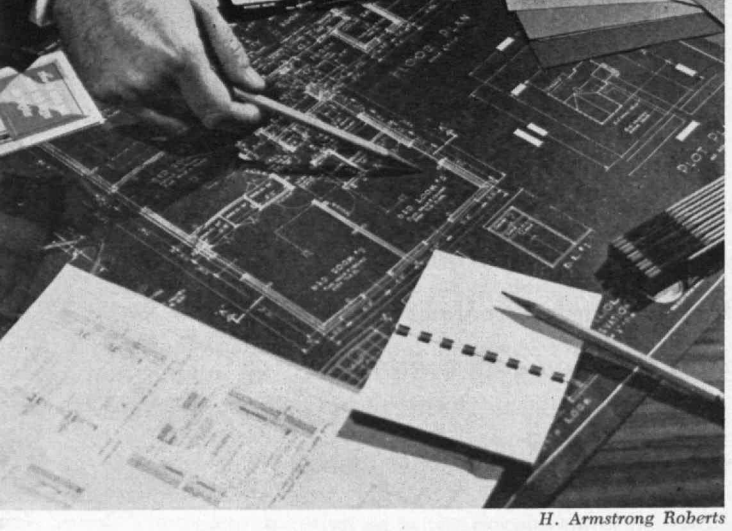
It is curious to read in the final pages of his autobiography his account of the new Daimler motor, and of the automobile "which, since 1893, had become a nightmare at 100 kilometers an hour." He tells of radium, x-rays, and the Branly coherer. For the first time he saw "frozen air" and the electric furnace. The dynamo impressed him most, and it seemed to Adams that among the thousand symbols of ultimate energy the dynamo was not so human as some, but it was the most expensive. And then in a prophetic paragraph he wrote of the new American: "... the child of incalculable coal power, chemical power, electric power and radiating energy, as well as new forces yet undetermined – will be a sort of God compared with any former creation of nature. At the rate of progress since 1800, every American who lives into the year 2000 will know how to control unlimited power. He will think in complexities unimaginable to an earlier mind. He will deal with problems altogether beyond the range of earlier society."

More than 50 years have passed since that was written and the progress of our efforts to master the physical universe continues to accelerate. Science is the key to that mastery. No other influence is acting today with comparable force to transform the character – indeed the very foundations of American life. The products and processes of science dominate our industry and determine our economy; they affect our health and welfare; they have altered our role in the family of nations, and they will govern the conditions of war and peace.

No one can remain impervious to these changes; but it seems to me that the total magnitude of change and the gathering momentum of material progress still are not fully understood. The world into which we were born is gone; we have little or no idea of the world into which our children may grow to maturity. It is this rate of change even more than change itself, this transition from the stability of the Victorian Era to some new future state of equilibrium whose shape we cannot as yet foretell, that I see as the dominant fact of our time.

We are asked to look forward, to discern as best we can what the future may hold in store for science, and to anticipate the needs of this new world that science is creating. This is a period of exciting discovery in physics. I imagine that 40 years ago Rutherford and his associates worked with the same tense expectation as their experiments began first to disclose the structure of the atom. Now this excitement is shared by hundreds, or even thousands, of physicists working in laboratories all over the world. In a few short years we have had to abandon our simple notions of matter. Elementary particles are appearing in bewildering number and array. We now enjoy resources for the study of physics such that we on earth can duplicate conditions that prevail in the stars themselves. Day by day new discoveries are reported that reveal how tantalizingly close we may be to a comprehension of the very nature of matter itself. If I were competent to do so, it would be tempting to speculate on the implications of these discoveries for the future development of physics, and to forecast the direction in which the search may lead.

We might also discuss the probable influence of these advances in physical science upon our technology. The recent progress of science has accumulated an enormous capital inventory upon which technology has as yet to draw. Henry Adams intuitively foresaw the rising abundance of available energy as the primary source of technological change. Our whole complex industrial civilization would be immobilized without mechanical and electrical power; but the usefulness of power is determined by a capacity to control and adapt it to our ends. Through electronics our ability to measure, to compute, to predict and to control is growing fabulously from year to year, even from day to day.



H. Armstrong Roberts

It might be rewarding to consider how the mounting speed of transportation and ease of communication is shrinking the globe. Literally and figuratively, as John von Neumann has recently pointed out, we are running out of room and at long last have begun to feel critically the effects of the finite size of the earth. There are countless other developments on the technological frontier which it would be interesting, but not fruitful, to examine. For the particular achievements of science and engineering seem to me of little import in the shadow of the great unsolved problem of how we shall learn to live in harmony and prosperity in this new world of our creation.

As we look to the future the questions of how and whom we shall educate transcend all others. The attitude of our people toward education, the plan and philosophy upon which we conduct it, shall determine in large measure whether this new generation will exploit science and technology for good or for evil, and whether knowledge will continue to advance.

Since I have chosen to speak of education before this gathering of physicists, you may think that I ought to consider first the needs of science. There is an appalling shortage of qualified teachers of science in our secondary schools. Instruction in physics, chemistry and mathematics appears to be losing rather than gaining ground at the secondary level; and yet, in the face of these limitations on the supply of young scientists, the national need continues to grow because of the new stress in industry on research and development, and the apparently insatiable demands of our huge defense program. These are critical problems and they deserve attention. But I believe they are symptomatic of a deeper trouble rather than fundamental in themselves. With effort we can patch up the worst defects of high school instruction; we can perhaps encourage a somewhat larger number of young college graduates to take up the teaching of elementary science and divert a larger proportion of youth into the fields of science and engineering. It is urgent that we make this effort and quickly; but such measures are at best expedients – a nibbling at the edge of a greater problem which leaves the heart untouched.

For we must view science in the perspective of the broad culture of the country. The education of scientists cannot be isolated from the educational aims and patterns of our population as a whole. The ranks of science and engineering – indeed of all the professions – rise out of the total body of cultivated people. The aims and modes of thought of the young men and women who flow into the professions, the common foundation of knowledge upon which every profession must rest – all this is limited and predetermined by the cultural horizons of the American public. And so I believe that we must look to the roots of *all* education in the American school and college. In this respect our concern will be no less than that of the lawyer or doctor. We cannot hope to alter greatly the regard for science or the quality of its instruction in our high schools until we have dealt with the more fundamental defects in the aims and processes of the high school itself. And in our more mature years we, as scientists, cannot live in isolation from the remainder of the community. We are a part of the total culture and we may be sure that science in this country will enjoy respect and support only to the degree that its purpose and methods are understood by the public at large. It would be idle to insist that every citizen become sophisticated in the ways of science. But the intellectual temper of a nation is set by that small group of people whom I shall call educated men. There are indeed scientists among them, but I am concerned with that greater number whose careers will lead them into other fields. They have been "liberally" educated in a traditional design, a design that is largely lacking in the substance of science. I fail to see how one can examine "liberal education" as it is still commonly conceived in the United States without concluding that it has lost relevance to the problems of our day.

Because I believe that soundness and balance in the design of liberal education are vital to the future of our science, I shall want to explore the matter more fully. Let me, however, revert for a moment to a particular set of attitudes which affect primarily our high schools, but in no small degree also affect our colleges.

We Americans seem instinctively to take delight in the devising of efficient systems to accommodate large numbers. I am in fact sure that the American genius lies in an extraordinary power of organization for production. The whole economy rests on this concept of large numbers with emphasis on moderate quality at low cost rather than on goods of fine substance at high price. This genius is the source of our strength, but likewise a symptom of our weakness. The weakness is compounded when quantity production becomes the single goal or aim of educational planning.

In our democratic concern to solve the problem of equal opportunity for all, we are tending to ignore the need to provide special opportunity for some. In our preoccupation with size we are losing the perspective of quality.

Certainly I do not mean that we have achieved equality of educational opportunity in the United States. The recent White House Conference made it abundantly clear how far we are still from attaining that goal. The normal barriers to progress in education are either economic or intellectual. Our task is

to eliminate every economic barrier to advancement, but we should acknowledge more frankly that intellectual limitations are inherent in the human mind. I think that we tend to ignore these limitations, to wish them away. The college degree itself has become the important objective rather than the advantage of going to college for those who are intellectually qualified. We must not seek to lift the median level of public education by slicing off the peak. By a sharp focusing of attention on the requirements and limitations of the average individual, we are failing in our responsibility to the most gifted. Only by meeting this obligation to the most talented of our children can we hope to maintain leadership among nations. In a contest of numbers alone we shall surely lose in the end. In no field is this more certain than in science and engineering, which are the key to our future security and prosperity. The time has come to speak out boldly and eloquently on behalf of excellence, excellence even at the sacrifice of quantity.

There is, to my mind, a second defect in the processes of the American educational system which is related to the first. In this country we tend to perpetuate in the university the attitudes and character of the secondary school. In large measure I believe this is the consequence of our national inclination to average down the standards of higher education in order to accommodate all those who aspire to a college degree. Too many students are entering our colleges expecting to be taught, rather than with the determination to learn, and they are fortified in that illusion by the attitude of the faculties themselves. The whole familiar process of corrected problems, of weekly quizzes, and midyear grades adds up to an almost intolerable burden, an academic overhead, so to speak, of vast proportions. It is difficult to reconcile that burden upon a faculty with the maintenance of scholarly excellence. But that in itself is not the crucial point. By the prolongation and intensification of secondary school experience into the undergraduate years of college we weaken or destroy intellectual initiative; we forget that the development of intellectual self-reliance is more vital than the accumulation of factual knowledge; we fail to keep pace with the maturing mind of the student.

I cling to the belief that a university should be more than an extension of high school, that at that level a faculty should teach as much by example as by instruction, and can render no greater service than to convey the meaning of scholarship and to instill a sense of high aims of mind and spirit.

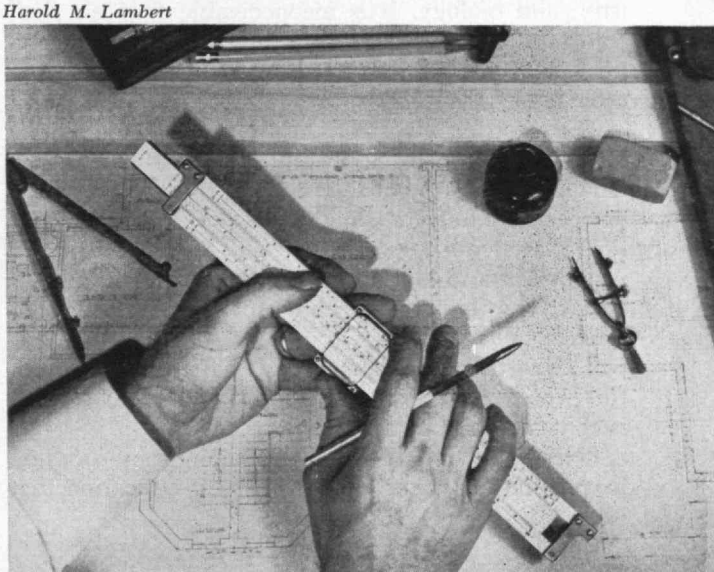
And now let me turn to the substance of liberal education. First I shall remind you that in every section of the country our technical schools have shown an increasing concern for the role of the humanities in the education of the engineer. This is a movement that reflects a growing awareness of the dominant part that scientists and engineers must play in the future of our society. It indicates an appreciation of the full status of a profession and its responsibilities. In almost every engineering school one may observe a liberalization of the curriculum. On the whole I think that we may be content with these developments. It is well to add history, philosophy and literature in moderate amounts to develop powers of judgment and taste, and to give balance to the whole. However, we must not be beguiled into believing that a sprinkling of the humanities is the key to culture. The educated man is distinguished by an attitude toward learning and a method of thought rather than by any particular domain of knowledge. Engineering education will attain professional stature by a concern for principles, a ceaseless reaching down for fundamentals, and a rejection of the immediately useful in favor of a painstaking search for understanding. The attitude which we, as teachers, take toward the subjects of science and engineering can have a more significant effect in opening and freeing the mind of the student than philosophy taught without spirit. Our engineering schools have become conscious of their defects, but they are beginning to perceive also their latent resources in strength, and I am confident of their future.

Whatever its shortcomings, education in science and engineering is on the move. I see no grounds for an equal confidence in the present state of the liberal arts. From the nontechnical colleges will come that body of educated men whose judgment and understanding must largely temper the public attitude toward science. Yet in a world that increasingly will be dominated by science and its products, it appears to me that liberal education has failed to keep pace with the changing character and expanding needs of the society which it should be designed to support.

Let me distinguish sharply between the ideals of liberal education and its current practice. These ideals are indigenous to Western civilization; they do not alter with the times. A liberal education is designed to enlighten, to impart a love of knowledge and wisdom. Its essence, according to Whitehead, is an education for thought and for aesthetic appreciation. It purports to deal with human values, with problems that are timeless. It undertakes to prepare the student to read, to listen, to see all that is lasting of man's works in art, music, literature, and thought.

But a liberal education must also be relevant to time and circumstance. It is an education for cultivated men in every walk of life and it should fit them to perceive and comprehend the great issues of our time, the forces that are shaping our destiny. It is my belief that modern man must take full account of the role of science and technology. We may draw

Harold M. Lambert



Quote . . . Unquote

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It is inconceivable that we shall continue to understand either ourselves or our relations with one another if educated people remain in their present ignorance of the nature of science.

upon the past for principles to guide our conduct and art to stir our imagination; but the liberally educated man must comprehend the best that is known and thought about the world in which he lives and the laws that govern the material universe.

Sir Richard Livingstone, that very distinguished advocate of humanistic studies, remarks that this past century has witnessed a steady attrition of standards in the sphere of ideas and a gradual breaking-up of a philosophy of life which has been accepted in the West for 1,500 years. The two chief instruments in this break-up he considers to be the otherwise beneficent forces of liberalism and science. He conceives freedom and reason to be "the chief forces of liberalism. The liberal believes in freedom for its own sake as giving the fullest opportunities to the human spirit, as encouraging and enabling its self-development, as alone adequate to its natural dignity and powers." And of science, he says its method "is to ascertain facts, to grasp them accurately, and to find explanations for them . . . it is a training in observation, in precision, in objectivity and in a rational habit of mind." But the main limitation of natural science, according to Livingstone – and I quote him because among our contemporaries he has defended most eloquently the traditional cause of the liberal arts – is that science is not human, whereas we have to live with human beings – including ourselves – and nearly all the problems of life are human, while the problems and subject matter of physics, chemistry and biology are not.

Here we really come to the root of the matter. For now, and increasingly in the time to come, we are destined to live not only with ourselves but with the problems and with the products of physics, chemistry, and biology. It is inconceivable that we shall continue to understand either ourselves or our relations with one another if educated people remain in their present ignorance of the nature of science.

The need as I see it is not one of replacing the liberal arts by science but rather of restoring a proper balance. The study of science, or let me better say of our physical universe, ought to be undertaken in our liberal arts colleges with the same thoroughness and serious purpose that once were devoted to Latin and Greek. The "history and philosophy of science" is not science. A lecture or two on the "scientific method" will impart little understanding of the true nature of the process. "General education" in so far as science is concerned is not the answer.

Perhaps I can best convey my thought by recalling to you the character of that classical education that for centuries molded the minds and set the standards of Western men. In medieval times, apart from the learning of scholars, education for the great mass of people was limited and specialized in guilds and trades, and through this specialization it was highly divisive. And yet there were binding forces of a culture that imparted a remarkable degree of homogeneity to all Western society. This inheritance that we call the classical tradition set the modes of thought, provided the language not only of intellectual leaders but of kings and statesmen down into the Nineteenth Century. It was a tradition drawing upon the mythologies of antiquity, the philosophies of Greece, and the laws of those very practical Romans. Ultimately the names of real and mythological characters and events were fused into a language of reference and allusion by which educated men communicated with one another. The full sense of Milton or Keats or Shelley appears only in the light of classical learning. Generations of British statesmen spoke and thought in these terms. A classical education served as the great vehicle of liberal thought.

We in the United States have lost that facility for classical reference derived from an intimate familiarity with the antiquity of Greece and Rome. A common bond and a common language that served educated people for more than 1,000 years has disappeared with the classical tradition. I do not think that we shall soon see it revived.

There is one great, unifying force working in our age, and that is science. We must turn to science for the lingua franca of modern men and find in science the vehicle of modern thought. The legends of antiquity have for centuries provided the symbols and structure of ideas. The gods of Olympus and the heroes of Troy became human as they were invested with human qualities through great poets. Science is woven through the fabric of modern life and already today is beginning to supply new themes and symbols to art and literature.

Thoroughness and unity of purpose were virtues of a classical education that we might do well to preserve. Perhaps some measure of that thoroughness may be restored through science. The entire burden cannot be left to the college. Education in science must be rooted in the elementary school and developed in our high schools with a seriousness of attitude and method that rarely exists today.

Let me now finally pull together these first thoughts on what I feel to be one of the great cultural issues of this coming age. Among all other problems I place first the education of our youth. As scientists we are properly concerned for the profession of science. There are defects in the education of scientists which we must remove. We are alarmed by the growing discrepancy between the need for scientists and engineers on the one hand and the visible supply on the other. We are troubled by the dwindling number of qualified teachers of science in our schools, the lack of incentive and prestige in the whole field of teaching, the seeming failure of science to draw its due from the most gifted of our youth. We are rightly concerned, too, because of unaccountable but manifest signs of open hostility toward sci-

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Salt of the Earth

A Common, Everyday Commodity of the Family Table; Its History, Uses, and Production

By HARRY W. VON LOESECKE

"Ye are the salt of the earth: but if the salt have lost his savour, wherewith shall it be salted? It is thenceforth good for nothing, but to cast out, and to be trodden under foot of men." — Matthew 5:13.

SALT (sodium chloride) is an essential constituent of our Western civilization. Without this white, crystalline substance, our clothing would be limited in comfort and eye appeal, many of the foods we now eat would be unobtainable, household gadgets accepted as commonplace would be unknown, and clean drinking water and modern sanitation would be impossible. Annual production of salt in the United States amounts to around 20,000,000 tons, while world production is more than 60,000,000 tons.

Primitive man very likely found salt quite unobtainable unless he was near surface deposits. As recent as around 1200 B.C. salt was apparently unknown in many parts of the civilized world, for Odysseus in his 10 years of wandering in returning home to Ithaca after the siege of Troy, speaks of inlanders who did not know of the sea and used no salt in their food.

Salt was known to the Jews of Biblical times, and they obtained it from the Dead Sea, using it in their religious offerings to Jehovah:

"And every oblation of the meat offering shall thou season with salt: neither shalt thou suffer the salt of the covenant of thy God to be lacking from thy meat offering: with all thine offerings thou shalt offer salt."—Leviticus 2:13.

All through man's history, salt has been one of the most important items of barter, and constituted a medium of exchange in the early commercial ventures across the Mediterranean, Aegean, and Adriatic seas. The ancient Greeks and Romans used salt in preserving fish and meat, and its value in this connection was also known to the Egyptians.

Some historians have assumed that great power and influence have accrued to certain nations because they possessed sources of salt and the skill and enterprise to supply it to commerce. The commercial power of the Roman Empire was alleged to have been built upon the Etrurian salt works at Ostia, and the influence of Venice in the Middle Ages was believed to have arisen from the same cause. In early American history, the need for salt tied colonial frontier settlers to the Atlantic Coast. In 1641, the first American patent was granted for the exclusive right to manufacture salt "by means and ways which hitherto hath not been discovered." Even before this patent, many attempts were made to recover salt from sea water at Cape Charles, Va., and at Cape Ann, Mass. It was not until the Revolution and shortly after, that salt production in the colonies became of importance.

Salt is considered a dietary essential, being the chief cation of extracellular fluid, and shares in the regulation of osmotic pressure and water balance in the body. It also helps maintain the acid-base balance of metabolic activity. In extremely hot weather more salt (and water) is required to replace that lost in the sweat. Such additional salt is preferably taken at meals and not as a separate item, and may be as much as 24 grams daily. Such quantities would rarely apply to older persons.

In certain pathological conditions, restriction of sodium chloride is necessary. Thus, if disease causes fluid retention in the body and edema forms, sodium intake is restricted and excess water ingested will be excreted in the urine because the mechanisms which maintain the concentration of sodium in the extracellular fluid will not allow water retention without sodium.

Other conditions, such as hypertension and some kinds of renal and heart diseases have also been treated with sodium restriction. Salt restriction is also necessary when adrenocorticotropic and adrenal cortical hormones (for example, cortisone) and other hormones such as stilbestrol and testosterole are administered, because sodium retention is one frequent metabolic consequence following use of these agents.

Per capita consumption of salt for food purposes in the United States amounts to about eight pounds per year. In 1941 annual per capita consumption was seven and four-tenths pounds. Some medical authorities believe that most Americans ingest too much salt. The quantity of salt used in the United States for seasoning foods is small compared to that for other purposes, and more salt is utilized in the manufacture of chemicals than any other basic material. Only about 3 per cent of the salt production is sold for table and household use, while over 70 per cent of the production serves as the basic material for the manufacture of chemicals, as shown in Table 1.

The most abundant form of salt, except that in sea water, is rock salt (halite) which occurs in transparent or translucent crystals. These may be either colorless, or tinted gray, yellow, orange, pink, red, brown, and sometimes blue or purple, depending upon the impurities present. Rock salt is the principal source of salt used in industry.

TABLE 1
Utilization of Salt

For:	*Per Cent of Total Production*
Chlorine, bleaches, chlorates, and so on	23.0
Soda ash	41.0
Dyes and organic chemicals	0.7
Soap	0.1
Other chemicals	4.1
Textile processing	0.6
Hides and leather	0.1
Food processing and preserving	6.6
Refrigeration	1.0
Table and household use	3.0
Livestock, agriculture, and general farm use	5.3
Highways, railroads, and other dust and ice control	4.0
Water treatment	3.0
Metallurgy	0.6
Miscellaneous uses	6.9
	100.0

Geologists have been concerned for years with proposing adequate theories to account for the vast deposits of salt in different parts of the world. All of these theories presuppose that deposits originated by the evaporation of salt water under desert conditions. Probably not all deposits were formed in this manner. The most extensive salt deposits in the United States are in southwest Alabama, central Mississippi, southwest Arkansas, north and south Louisiana, and northwest Texas. Deposits are also found in New York, Pennsylvania, Ohio, West Virginia, and Michigan. Surface deposits, resulting from dried-up lakes and salt marshes, are found in different parts of the world. In the United States they may be found to occur in the Great Plains section of Utah, Nevada, Arizona, Colorado, California, and New Mexico.

The ocean is perhaps the greatest source of salt brine known, and sea water is extensively used for salt production in many parts of the world. At one time almost all of the salt in commerce was produced by the evaporation of sea water.

In manufacturing salt, it is necessary to have a process that can economically produce a pure, low-priced commodity. Production is carried out by mining, by the evaporation of artificial and natural salt brines, and by evaporating sea water and brines from salt lakes. The method used is determined by natural resources of the area, and by geological and climatic conditions.

Mining consists of sinking a shaft to the rock salt bed and bringing out the salt which is in a very pure state and therefore needs no further treatment. The largest salt mine in the United States is that of the International Salt Company at Retsof, N.Y. Salt is mined in essentially the same manner as coal, that is, by undercutting, sideshearing, drilling, blasting, loading, and grinding. But there appear to be no health hazards in a good salt mine, for the air is generally uniformly cool and of low relative humidity. About 25 per cent of the salt produced is mined rock salt.

Salt by Evaporation. Most refined salt is produced from artificial brines made by pumping water into a cavity in rock salt beds some 2,000 feet beneath the surface, to dissolve the salt. The brine solution is then pumped to the surface. Two concentric strings of pipe are driven into the ground in an operation similar to well drilling. Water to dissolve the salt is pumped through the annular space, and saturated brine is removed through the central tube.

Unlike rock salt obtained by mining, the brine obtained must be treated to remove impurities such as calcium and magnesium sulfates, hydrogen sulfide, bicarbonates, and iron. Hydrogen sulfide is removed by allowing the brine to trickle over baffles, subsequently followed by a chlorine treatment to oxidize the last traces of hydrogen sulfide. The free sulfur obtained by this oxidation is removed in settling tanks. Chlorine also oxidizes the iron which precipitates. Most of the calcium and magnesium are removed by adding soda ash and caustic soda.

After impurities have been removed, salt is crystallized from the brine in multiple effect vacuum evaporators in the same manner as sugar is made. The salt comes down as fine cubical crystals the size of which is effected by such factors as amount of circulation in the vacuum pans, quantity of salt in suspension in the brine, and extent of separation of proper-sized salt crystals in the pan. The fine cubical crystals obtained are used for table salt and for many food-processing operations.

The mother liquors from the vacuum pans contain calcium sulfate in solution or as a fine suspension. Suspended sulfate is removed by washing the crystal salt with fresh brine.

Washed salt from the evaporator is vacuum filtered, or centrifugals similar to those used in sugar making are used. The salt is dried in rotary kilns or in fluidized bed driers which are more economical than kilns. Since salt will absorb moisture and cake, it is either packed in moisture vaporproof containers, or a filler is added.

For certain uses, salt having greater surface area and less bulk density than cubical crystals obtained by vacuum evaporation is desired; for instance in making cheese and salted butter. Such salt is produced in grainer pans, a more expensive procedure than vacuum evaporation. In the grainer procedure, brine is evaporated in open pans and salt crystallized in the pans as air is circulated over the surface of the brine. Cubic shaped crystals will form on the surface of the brine in the pans, and when these crystals grow they change in form to hollow pyramids, and finally sink. Salt from grainers must be carefully handled to prevent breaking the crystals. The wet salt is dewatered and washed with brine in a centrifuge and then dried by passing over a vibrating plate through which air is blown.

Salt in natural brines is recovered in essentially the same manner as for artificial brines. About 12 per cent of the salt produced in the United States is by the evaporation of natural or artificial brines.

Solar Salt. This method of production is important in many warm countries where annual rainfall is light. Around 1,000,000 tons of solar salt are produced annually in the United States. For successful and economic production, a cheap source of heat (the sun) and a large acreage of level land consisting of clay or marl, adjoining a salt-water source, are necessary.

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Engineering AND SCIENTIFIC EDUCATION

Without Reform of Our Educational System, "Our Economy Will Be in Serious Trouble for Lack of Technological Nourishment"

By H. G. RICKOVER

I CONSIDER the present crisis in education as grave a problem as any that faces our country today. Unless it is dealt with promptly and effectively the machinery which sustains our level of material prosperity and political power will begin to slow down and we will be in danger of losing the cold war by default. Let me illustrate this with a few figures:

First, the United States has doubled its population in the past 50 years and is expected to double it again by the end of the century. Second, with only 7 per cent of the world's population and 8 per cent of the land area, the United States is today responsible for more than half the world's production. Third, to maintain our relative position in the world economy and to preserve our high standard of living, American industry must — 10 years from now — produce 40 per cent more than it does today.

An essential function of leadership, in the government of nations as in the management of industries, is to plan for the future. What we do today was largely determined for us by the vision and action of those who preceded us. Likewise, tomorrow's events will depend on what we plan and do today — on the wisdom we use in planning for the future. Perhaps the most insidious weakness a nation can have is the belief, fostered by propaganda of one kind or another, that it can do everything better than other people. We in this country are subjected to this kind of propaganda in various media — such as the slick advertisements of magazines — week upon week, month upon month. We overlook what we do not hear much about, especially if it is unpleasant.

There are some who believe that the United States is not even graduating enough trained people merely to sustain our present rate of technical expansion beyond the year 1970. What is certain is that unless the number of our scientists and engineers increases at an accelerated rate our economy will be in serious trouble for lack of technological nourishment, because our pool of graduate engineers is the source from which arise nearly all our technological advances — from jet engines and nylon, to earth satellites, atomic power, and intercontinental missiles.

America's present educational crisis is not only one of quantity, that is, not enough engineers and scientists being graduated each year — but also one of quality. And this is a serious matter, for in the contest with Russia we must depend on greater human quality, since we cannot match her man power in numbers. Our primary and secondary schools have recently come in for much criticism for not doing a good job. Actually, the average high school graduate of today is better trained than the one of 75 years ago — which should not surprise us since today's school year is twice as long as that of 1870; the proportion of teachers to pupils is greater; and, even taking into account the changed value of the dollar, we spend nine times as much per pupil today as we did in 1870. We have thus a situation where the child goes to school twice as long, costs us nine times as much to educate, but gets only a little better education than he was getting 85 years ago.

Unsatisfactory as this may be, the real issue is not whether the present-day pupil compares favorably with the pupil of 1870 but whether he is adequately trained for the demands of today's society. I submit that he is not. I say this on the basis of study, intuition, and the experience I have gained from interviewing more than 1,000 college graduates over the past 10 years.

My experience in selecting people may have some relevance for other engineers because the design and development of nuclear power plants is extremely difficult. It encompasses the most advanced scientific and engineering concepts in physics, mathematics, chemistry, metallurgy, electrical engineering, electronics, and mechanical engineering. The problems we face in nuclear power plants are indicative of what all branches of engineering will soon have to face.

Another important point that has been made clear to me in interviewing young graduates is that they know many facts, but they have not learned many principles. Principles are more important than facts and far more difficult to master. But once a principle is learned it becomes a part of one, and is never lost. The facts we learn are soon forgotten and their meaning changes with time. A trained man knows how to answer questions. An educated man knows what questions are worth asking.

My concept of a good engineering course is one in which the student learns the principles of mathematics, of physics, of mechanics, of electricity, of metallurgy, and of chemistry. A thorough understanding of these leads easily to handling the facts associated with them. The employer who wants a "practical" engineering graduate is simply hiring a man who knows how to make the same mistakes that have been made in his plant for the past 10 to 15 years.

I have tried to give you my view of some of the problems that face us in engineering education. What can we do about them?

Boeing Airplane Company

First, we must see to it that every young man and woman who is qualified obtains a college education. Today less than half of those capable of acquiring a college degree enter college. Sixty per cent of the best students graduating from high school do not go to college. This is a tremendous loss of talent amounting to 250,000 students each year. And nearly half of all those who do start college do not graduate. For every high school graduate who eventually earns a doctoral degree there are 25 others who have the intellectual ability to achieve that degree, but do not. We simply cannot afford a waste such as this.

Second, we must increase the funds for education. The United States is spending about 2½ per cent of the national income on education. In contrast we spend more than 4 per cent on recreation. We spend more money for comic books than for all textbooks used in our elementary and high schools. In 1951 the amount spent for advertising was $199 for every family in the United States, but the amount spent for primary and secondary education was $152 per household. This means that our national outlay for the education of citizens was substantially less than our expenditures for the education of consumers.

Third, from what I read in the papers we seem to be more concerned with expenditures for school buildings than for spending money to obtain better teachers. Schools can be constructed in two years or less, but it takes four years to train an elementary or high school teacher, and seven to eight years to train a college professor. Our school buildings may be the best in the world, but can we say the same of our teachers? I do not mean to imply that we should not have the best school buildings, but perhaps our children would be better off with fewer buildings but with the best teachers it is possible to obtain. We plan to spend 25 billion dollars in the next 10 years on school buildings. What amount are we prepared to spend for assuring better teachers for these schools?

This leads me to the question of the salaries we pay teachers. Compared to other professions there has been a considerable drop in their purchasing power, particularly for those at the highest professional levels. The deterioration at the top is so great that it has affected the attractiveness of the academic career as compared to other professions. In any profession, and particularly in the teaching profession, there are dedicated people who will work under adverse conditions and at low pay. But we must not delude ourselves that the answer to our dilemma lies solely in dedicated people. There will never be enough of these. We are not entitled to educate our children on the philanthropy of our teachers. Whether we like it or not, in the culture which exists in the United States today the desirability of a given occupation is measured largely in terms of salary. As a rule the better people are attracted to the higher paying professions. This explains why the ablest young men and women are turning away from teaching even though numerous scholarships and fellowships are available. No such recruitment problem exists, for example, in medicine or in law. These have no lack of applicants; in fact many are turned away.

We all know of the nationwide shortage of elementary and high school teachers. What is not evident is the real meaning of this shortage, because very few classrooms are ever closed because a teacher is lost. What happens is that teaching standards are lowered or the class size is raised. Both of these accommodations are already taking place at a growing rate. When a teacher with the desired qualifications is not available, someone with lesser qualifications is hired. The teacher then becomes, in effect, a "baby sitter."

Another thing we can do is to increase the length of the school year. The present school year is based on the requirements of an agricultural economy where the children had to help on the farm. True, the actual number of days at school now averages about 180 as compared with 90 days about 80 years ago. But, as you well know from your own experience, and from what your children tell you, many of these 180 days are wasted. With the great and geometric advance in knowledge since the turn of the century, can we afford to have our children devote less than half their available days to elementary schooling? Students in Europe, including Russia, attend school six days a week instead of five, and their vacation period is about two thirds of ours.

There is no longer a sufficient number of years left during youth to develop properly educated men and women. And we cannot keep them in school too long after they reach the age of 22 or 23 because it is then time for them to face the problems of the world. So it is to the earlier years that we must look for added learning. This problem has become particularly acute due to universal military training.

Increasing the length of the school year, say to 210 days, would be the equivalent of making two additional years available before college. If to these

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Freedom and Probability

Social Conditions Leading to the Greatest Diversity of Individual Action Provide the Greatest Probability That the Right Course of Action Will Be Discovered

By H. B. PHILLIPS

THERE is a widespread notion that freedom is a fundamental human right. According to this notion an individual is entitled to do as he pleases, provided his acts do not injure or annoy others. That an individual should have such a right seems to be taken as a social axiom. If such a right exists, it certainly should include the right of an individual to do less constructive work than he is capable of doing. But such inaction lessens total production, and in a world where there is a close balance between life and resources this will cause the lives of some people to be shortened. Thus freedom seems to include the right to let people die who might continue to live. Why the people thus predestined to die should accept this fate is not explained.

It is generally assumed that there is a universal desire for liberty, but there is some doubt whether this is really true. In the democracies the advantages of liberty are described to children almost from birth, and it is a fact, well known to advertisers, that people will believe anything if it is repeated often enough. To determine what people actually think about liberty it is, therefore, necessary to take illustrations which involve the subject but not the word, for example, the habits to which people are voluntary slaves. A good illustration is smoking. After smoking steadily for many years, it sometimes happens that a person stops long enough to become free from the habit. From this experience he learns, as George R. Harrison, Dean of the Institute's School of Science, has remarked, that "a smoker enjoys himself while smoking only as much as a nonsmoker does all the time." The smoker is therefore compelled to make an effort to attain the state of satisfaction which the nonsmoker has without effort. That millions of people voluntarily submit to this bondage indicates that they have little actual desire for liberty. What they really want is not to be free but to continue the customary form of bondage.

This desire to continue the customary bondage is also indicated in other ways. Consider conditions, for example, in the industrially backward countries. Some of these countries have natural resources and a code of morals at least equal to those in the United States, with an average length of life less than half that in the United States. The people in some of these countries have as great ability as we have. Their low condition is not due to any evil conduct of the population. They merely attempt to live as their ancestors did centuries ago. That style of life was hardly sufficient for the population then existing. Because of the much larger population at the present time, it is now totally inadequate. By adopting modern methods they would experience the same overproduction of commodities we have in the United States. Thus it is not what they do, but what they don't do, that makes them what they are. They merely refrain from doing the things that would enable them to work less, have more, and live longer.

Such failure to make use of opportunities has led simple-minded people in all ages to advocate restrictions on freedom. In the Middle Ages, for example, people thought they knew the way to heaven. They did not consider it right that others should be lost by following the wrong road, and so used force to make them follow the right. Assuming that they did know the way to heaven, this use of force was entirely justified. A few bruises or broken bones are trivial in comparison with broiling throughout eternity in hell. But, if they were wrong, they had no right to force their errors upon others. In our own time many think they know better business methods. They do not think it right that the public welfare should suffer through the use of inferior methods, and therefore advocate socialist schemes for handling business. If these socialist schemes are really better, no fancied personal freedom should be allowed to interfere with putting them into effect. In all such cases, if right methods are known, they should be enforced, since freedom then consists merely in the privilege of being wrong. Ignorance is thus the only excuse for freedom.

In a specific case the fundamental question is then to know whether we know or whether we don't. In his famous defense, Socrates said he was wiser than his opponents in only one respect, namely, that he knew he didn't know whereas his accusers didn't know that much. In a free society each individual decides for himself what he considers to be right. Anyone who has served his time on a college debating team knows, however, that he can be assigned to either side on a political question and in a few hours become convinced that his side is 100 per cent right and the other side 100 per cent wrong. In fact, failure to react in this nimble way is evidence not so much of more stability as less imagination. It is presumptuous for any one to take his own feeling of mental certainty as final evidence that he is right.

The reason for this difficulty is that the expressions true and false, right and wrong, have valid meaning only under limited conditions. For these expressions to be applicable in a discussion, there must be a collection of fundamental facts and principles which are consistent with each other and accepted as correct by both sides. It may then be possible to determine by logical processes whether a proposed statement is true or false in the sense of being consistent or not consistent with this fundamental material.

In the sciences there is such a collection of generally accepted facts. The texts and reference books in these subjects contain essentially the same material all over the world. If a questionnaire concerning details is sent to experts in one of these fields, more than 99 per cent will return the same answers. It is only concerning features still under investigation that answers will differ. But in the political and social fields no such general agreement is found. Different authorities, starting from different premises, arrive at different conclusions. If a questionnaire concerning details is sent to experts, it will often be found that less than 60 per cent support the majority view.

Here, then, is the objective criterion determining whether we know or do not know. When nearly all agree who claim to know, it is reasonable to assume that the majority view is correct. The answer may still be wrong, but if a decision is necessary the probability of error in such a case does not justify hesitation. The existence of an appreciable minority, however, indicates serious doubt whether the truth is known. The exact size of the minority is not important. In clearly defined cases 10 per cent or even 1 per cent may be too large. If millions of such cases are studied, subsequent history will probably show the minority correct as often as the majority.

The problem is then what to do when agreement is not practically unanimous. This problem has been handled in several ways. One method is to leave the decision to a dictator. In primitive societies that was probably not a bad solution, but one that is now completely obsolete. Another method is to leave the decision to the intellectually superior. When the experts are in substantial agreement, as in science and engineering, that is certainly the correct solution. But when there is considerable difference of opinion, there is no evidence that the intellectuals supply any better answers than ordinary people. This has led to a third method, that of making decisions by majority vote. As Aristotle points out, this has the great advantage of making more people satisfied than dissatisfied. But a state of mental satisfaction doesn't help much if the decision is wrong, and the preponderance of votes in a ballot box has little connection with right and wrong.

These methods all have a common defect, namely, that they lead to a single solution, and when the experts do not agree any single solution is a matter of chance and therefore probably wrong. Some would say there is as much chance that such a decision would be right as wrong. But that is not correct. The choice is not one out of two, but one out of many. It is as if one should say, "I don't know how much two times three is, so I'll take a chance and say it is seven." Such guesses are almost certain to be wrong.

If any single solution is probably wrong, the only way of increasing the chance of success is to try simultaneously a large number of solutions. The probability of including a correct solution will increase with the number of choices, and will be greatest if each individual makes his own choice. The correct solution will then be indicated by the greater success of the individual who makes that choice. Throughout the history of evolution this has been nature's method of making a choice, and in human affairs it is what we call freedom. The purpose of human freedom is thus to provide maximum diversity of action and therefore the maximum probability that somebody will be right.

In human affairs the primary objective is the general welfare. In a specific case, either we know what course should be followed or we don't. When we know what is best we incorporate instructions in the law and permit no freedom. When we don't know we permit the individual to go his own way, not for his benefit but for our own, because, if allowed to do so, he will do more for the rest of us, on the average, than under any orders we are able to give. The purpose of human freedom is thus to permit each individual to do his best for the general welfare.

Since freedom results in more things being tried and therefore more correct solutions being found, freedom increases progress, and since progress increases control over environment it increases freedom. Freedom therefore creates more freedom, and so advances at an ever increasing rate. This can be seen even in the short history of the United States. There is no comparison between our liberty and that in colonial times. Most of the people in that period were doomed to work desperately hard and die at an early age. They rarely moved from the section where they were born, and then only by a tedious journey on horseback or by stagecoach. Their mental activities were limited to local gossip and partisan politics. They had few books, inferior schools, and no facilities for research. Liberty is measured by opportunity. Under the severe conditions of colonial times, the individual certainly had much less opportunity than now to develop his own powers and to aid in the general advance of mankind. The greater release of our energies from restricting influences is shown by the fact that, in many lines of endeavor, the advance made during the last half century is greater than that in all preceding history. Because of the higher level of general welfare now attained and the larger number of workers, it should be even easier to repeat that performance during the next half century.

For this to be the case, however, freedom must be a reality and not a mere form. In the United States the greatest restriction on liberty is probably imposed by our overemphasis on equality. The result is a pressure to make all citizens alike. In machinery this mass production reduces cost without reducing quality. But each person is an individual different from every other individual. For best development of his talents and their utilization he must have conditions different from those of every other person. Any other conditions fail to provide the opportunity to do his best which is the real essence of freedom.

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THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

Students Abolish Hazing

STUDENTS of the Institute, acting through the Interfraternity Conference and the Institute Committee, the M.I.T. undergraduate governing body, have taken steps to improve initiation customs and to abolish hazing among all student groups in the Institute. This action, initiated by the students themselves following the recent tragic accidental death of Thomas L. Clark, '59, was announced by James R. Killian, Jr., '26, President, on March 11. In making this announcement, Dr. Killian said:

I report with deep satisfaction this decisive action by the Student Government at M.I.T. in outlawing hazing and other outmoded activities by fraternities and other student groups.

I hope the conclusiveness and comprehensiveness of the policies adopted for condemning and outlawing these immature practices will be widely recognized as typifying the best in student life and responsible student government. M.I.T. will employ every power and means at its disposal to back and to perpetuate this action of Student Government.

Following a study of every phase of fraternity initiation customs at M.I.T., the Interfraternity Conference, representing all fraternities at the Institute, announced these regulations for initiation procedures:

1. No fraternity shall violate the basic principles of good taste, and a fraternity will initiate no activity which will be detrimental to the reputation of the M.I.T. community.

2. No initiation or pledge training activity shall constitute any physical or emotional hazard to the individual. Such potential hazards include the "long walk," the quest, dangerous physical exertion or exhaustion, physical violence, paddling, and the "mock initiation."

3. No pledge training or initiation activities will take place outside of the fraternity house with the exception of such functions as a formal initiation banquet or service to the community.

In order to help achieve a more constructive pledge training and initiation program in the 26 M.I.T. fraternities, the Interfraternity Conference announced the formation of a Pledge Training Committee and requested the assistance of members of the Faculty and Administration, including representatives of the Medical Department, in accomplishing its purpose.

The Interfraternity Conference investigating group also requested the support and active assistance of all fraternity chapter advisers. The Pledge Training Committee will also give advice and assistance to the fraternities and will have the power to recommend changes in the general initiation program.

Recognizing that hazing activities neither contribute to the spirit of the educational community nor further the maturity of the students; that such activities may result in property damage and constitute hazards to participating students, and that hazing activities reflect on the reputation of M.I.T. and its student body, the Institute Committee, representing the entire undergraduate group at the Institute, endorsed the action of the Interfraternity Conference, and, in addition, acted to outlaw completely all hazing associated with interclass rivalries.

Shannon, Visiting Professor

CLAUDE E. SHANNON, '40, research mathematician at the Bell Telephone Laboratories, Murray Hill, N. J., and one of the nation's leading contributors to modern communication theory, has been appointed visiting professor of electrical communications at the Institute. C. Richard Soderberg, '20, Dean of the M.I.T. School of Engineering, who announced Dr. Shannon's appointment, said that while at M.I.T. during the spring term, Dr. Shannon will also be an active member of the Bell Laboratories, and added:

While he is a member of the Department of Electrical Engineering at M.I.T., Dr. Shannon will teach an advanced subject on information theory based on his recent Bell Laboratories research which has opened up new, important avenues in this field.

Dr. Shannon will also be associated with the M.I.T. Research Laboratory of Electronics. The generosity of the Bell Telephone Laboratories in permitting Dr. Shannon to come to the Institute will give further impetus to the Laboratory's already active research program on communication and information theory.

A native of Gaylord, Mich., Dr. Shannon received his bachelor's degree in electrical engineering and mathematics from the University of Michigan after attending the Gaylord public schools. After four years of graduate study at M.I.T., he was awarded a master's degree in electrical engineering and the Ph.D. degree in mathematics in 1940. During these years at M.I.T., Dr. Shanon served as research assistant in the Electrical Engineering Department and later as an assistant in the Mathematics Department. As a National Research Fellow, Dr. Shannon studied at the Institute for Advanced Study, Princeton, N. J., in 1940, and in 1941 he joined the staff of the Bell Telephone Laboratories.

Dr. Shannon's work has been recognized by the award of the Alfred Noble Prize of the American Institute of Electrical Engineers, the Morris Liebmann Award of the Institute of Radio Engineers, and the Stuart Ballantine Medal of the Franklin Institute. In 1954 he was awarded the honorary degree of master of science by Yale University. Dr. Shannon has contributed to many fields of applied mathematics.

Class Reunions in 1956

Class	*Date*	*Place*	*Reunion Chairman or Class Secretary*
1891	June 9	Brookline Country Club, Brookline	Harry H. Young, 290 Main Street, Cambridge
1896	June 11	Du Pont Court, M.I.T., Cambridge	John A. Rockwell, 24 Garden Street, Cambridge
1901	June 8-10	Castle Hill, Ipswich	Willard W. Dow, 78 Elm Street, Cohasset
1906	June 8-11	*50th Reunion* Snow Inn, Harwichport	James W. Kidder, 215 Crosby Street, Arlington 74
1908	June 8-10	Cape Cod, Mass.	H. Leston Carter, 14 Roslyn Road, Waban 68
1911	June 8-10	Snow Inn, Harwichport, Mass.	Orville B. Denison, Framingham Chamber of Commerce, 109 Concord Street, Framingham
1913	June 8-11	New Coonamessett Inn, Falmouth	Frederick D. Murdock, 88 Rumstick Road, Barrington, R.I.
1916	June 8-10	Oyster Harbors Club, Osterville	Ralph A. Fletcher, Box 71, West Chelmsford
1921	June 8-10	Sheldon House, Pine Orchard, Conn.	Melvin R. Jenney, 9 Meadowview Road, Melrose 76
1926	June 8-10	Treadway Inn, Coonamessett, N. Falmouth	Cedric Valentine, 18 Heath's Bridge Road, Concord
1931	June 8-10	*25th Reunion* Baker House, M.I.T., Cambridge	Charles W. Turner, 65 Exchange Street, Lynn
1936	June 8-10	New Ocean House, Swampscott	Anton E. Hittl, 193 Bedford Road, Pleasantville, N.Y.
1941	June 8-10	Mayflower Hotel, Shore Club, Plymouth	Edward R. Marden, 233 Harvard Street, Brookline 46
1946	June 8-10	Curtis Hotel, Lenox	Stuart Edgerly, Jr., 38 College Road, Wellesley 81
1951	June 9, 10	Mayflower Hotel, Plymouth	Charles H. Spaulding, 9 Belfrey Terrace, Lexington 73

Ernst A. Hauser: 1896–1956

ERNST A. HAUSER, Professor of Chemical Engineering at M.I.T., and an internationally known authority on colloid science, died at his Cambridge home on February 10. Dr. Hauser, who was born in Vienna, Austria, and became a naturalized American citizen in 1941, was awarded the degree of doctor of philosophy by the University of Vienna and an honorary doctorate in science by Worcester Polytechnic Institute. Following World War I service as a captain in the Austrian Army, he began his career as an assistant at the University of Goettingen, Germany. Dr. Hauser served as a research chemist from 1922 until 1925, when he was named chief chemist of the Colloid Laboratories of Metallgesellschaft. From 1932–1935, he was chief chemist of the "Semperit" Austro-American Rubber Works, Ltd., in Vienna. Before coming to the United States, Dr. Hauser was nonresident associate professor of colloid chemistry at M.I.T. from 1928–1931. He became a resident associate professor of chemical engineering at the Institute in 1935, and a full professor in 1948. During World War II, he served as expert consultant to the Office of the Quartermaster General and as technical adviser to the Baruch Synthetic Rubber Committee.

Dr. Hauser received citations and honors from scientific societies throughout the world. He was a fellow of the American Association for the Advancement of Science and the American Institute of Chemists, and a member of the American Chemical Society and National Research Council.

Joseph N. Scanlon: 1899–1956

JOSEPH N. SCANLON, lecturer in the Department of Economics and Social Science of M.I.T., died at the New England Medical Center on February 10. He was 56 years old. Mr. Scanlon, a noted labor leader, was responsible for the famed Scanlon Plan of union-management co-operation. He had been actively associated with the labor movement for more than 20 years and was director of research and engineering of the United Steelworkers of America, C.I.O. During World War II, he served on several labor advisory committees of the War Production Board and in recent years was a technical adviser to the Anglo-American Council on Productivity of the Mutual Security Agency. As a lecturer at M.I.T., he made important contributions to the Institute's educational program in the field of industrial relations.

A native of Cleveland, Ohio, Mr. Scanlon had been an experienced cost accountant before he entered the production departments of the basic steel industry. The plans for union-management co-operation which he developed as president of a local union of the Steelworkers Organizing Committee and as a staff member of the United Steelworkers of America formed the basis of his widely known Scanlon Plan. In addition, he frequently lectured at meetings of employers, trade associations, and engineering societies, and participated in industrial relations seminars and conferences at Harvard, Princeton, the Universities of Pennsylvania and Chicago, and Holy Cross College, as well as at the Institute.

Etchings by Four Alumni Displayed

EIGHTY etchings by four graduates of M.I.T. were shown during February in an exhibition in the gallery of the Charles Hayden Memorial Library. The etchers, all of whom studied architecture at the Institute, were: Samuel V. Chamberlain, '18, Marblehead; Louis C. Rosenberg, '13, Greens Farms, Conn.; John Taylor Arms, '11, recognized as one of the masters of American etchers, who died a little more than two years ago; and George C. Wales, '89, who died in Brookline in 1940.

For the first time in many years, the prints of Arms, Chamberlain, and Wales were brought together for a showing. In the early 1900's, their work was exhibited in the old Rogers Building where M.I.T. was housed while still in Boston. This exhibition included, for the most part, the later works of the three men as well as the prints of Rosenberg.

The influence of their training in architecture at M.I.T. was reflected significantly in the artistic interests and subject matter of each etcher, although not obviously evident in the case of Wales who was deeply fascinated by ships. The entire collection of Wales's works in this exhibition was concerned with sailing vessels. A strong architectural quality predominates in the etchings of the other three artists. The intense interest of Arms in Gothic architecture was exemplified in the representations of the "North Portal, Chartres" and the doorway of the "Cathedral of Orense." Chamberlain, who is also an exceptional and prolific photographer, had among the etchings landmarks familiar to Bostonians, such as "Christ Church, Cambridge." Like Arms and Chamberlain, Rosenberg was inspired by the quaint and medieval quality of many old European streets and cathedrals shown in his "House of the Salmon, Chartres."

Secretary, Development Office

APPOINTMENT of John W. Sheetz, 3d, '42, as Executive Secretary for Development at M.I.T., was announced in February by Robert M. Kimball, '33, Secretary of the Institute.

Mr. Sheetz became assistant to the director of Lincoln Laboratory in 1952 and has been at M.I.T. since 1953 as assistant to the director, Division of Business Administration, and Assistant Director of General Services. In his new position he will give his primary attention to annual contributions programs and will be responsible for administrative management of the Development Office, where he will be associated with Ralph T. Jope, '28, Director, and Walter H. Gale, '29, special assistant. Mr. Jope is also business manager of The Technology Review.

A native of Philadelphia, Mr. Sheetz attended Episcopal Academy in that city and was graduated from M.I.T. in 1942. After service in the Navy during World War II, he returned to the Institute for a master's degree and was then employed by the Navy Department in connection with electronics and guided missiles programs.

On Saturday, February 4, several hundred Alumni and friends of M.I.T. attended the Midwest Regional Conference in St. Louis at which James R. Killian, Jr., '26, President, spoke on current activities at M.I.T., and Joseph W. Barker, '16, President of the American Society of Mechanical Engineers, spoke on educational matters. The Review hopes to bring to its readers the text of Dr. Barker's address.

Under the general theme of "Today's Research and Its Impact on Tomorrow," those attending had opportunity to hear George R. Harrison, Dean of the School of Science, speak on "The New Frontiers of Science"; John G. Trump, '33, Professor of Electrical Engineering, speak on "High Voltage Particles in Medicine and Industry"; E. P. Brooks, '17, Dean of the School of Industrial Management," speak on "Today's Plans for Tomorrow's Management"; and Thomas H. Pigford, '48, Associate Professor of Nuclear Engineering, speak on "The Nuclear Reactor: New Tool for Research and Industry."

As recorded in informal photographs, Theodore T. Miller, '22, chairman of the Alumni Fund Board, took an active speaking part (left), *as did President Killian* (center). *At the right are shown (from left to right): Robert J. Joyce, '28, President, Joyce Company of St. Louis; Mrs. Thomas; and Charles A. Thomas, '24. Dr. Thomas is a member of the M.I.T. Corporation and president of Monsanto Chemical Company.*

Happy Birthday!

THE 143 members and guests who attended the 315th meeting of the Alumni Council at the M.I.T. Faculty Club were treated to an unusual event on Monday, February 27. As President of the Alumni Association, Dwight C. Arnold, '27, called on Horace S. Ford, oldest Honorary Member of the Alumni Association and an Honorary Member of the Council, to make a special presentation in behalf of the Association to Godfrey L. Cabot, '81, on the occasion of his 95th birthday, February 26.

In his salute to Dr. Cabot, Dr. Ford recited, in delightful manner, the family background, birth, education, affiliations, business activities, aeronautical accomplishments, travels, and benefactions of the senior Alumnus of the Institute whose Class celebrates its 75th anniversary this year. Dr. Ford's tribute and felicitations would occupy somewhat more than two pages of solid text in The Review if printed in full; it is, accordingly, necessary to present merely an abstract here, although the full text is included in the minutes of the Council meeting.

Dr. Cabot's father was one of the petitioners for the grant of land on Boylston Street for use of the, as yet unchartered, M.I.T., and his brother was among the first 23 students to attend classes at the Mercantile Association Building on Summer Street. After attending the Brimmer School, Boston Latin School, and Hopkinson School, Dr. Cabot enrolled for one year at M.I.T. where he studied mechanical and freehand drawing, and later attended Harvard. Dr. Cabot is the fourth oldest living Technology Alumnus and the fourth oldest living graduate of Harvard College.

Dr. Cabot's avid interest in aviation was reviewed. The current practice of refueling in mid-air and the use of air mail were traced to pioneering activities of Dr. Cabot who learned to fly at the age of 54.

Finally, with the following tribute — "Godfrey Lowell Cabot: A remarkable man; a generous man; a kind man; and above all, a good man" — Dr. Ford presented a certificate of felicitation to Dr. Cabot.

President Arnold reported that, from February 2 to February 16, an even dozen members of the M.I.T. family had attended the Regional Conference in St. Louis and meetings of the M.I.T. Clubs in New York, Cincinnati, and New London. Chenery Salmon, '26, chairman of the Midwinter Meeting Committee, reported on this meeting (see page 246 March Review).

Donald W. Kitchin, '19, chairman for the 1956 Alumni Day Committee, announced personnel of committees as follows: *Conference* — Dr. Egon E. Kattwinkel, '23, chairman, B. Alden Thresher, '20, Robert S. Harris, '28, John G. Trump, '33, and Dr. James M. Faulkner (Staff); *Registration* — Wolcott A. Hokanson (Staff), chairman, G. Edward Nealand, '32, and Robert E. Hewes, '43; *Special Invitations* — Philip A. Stoddard, '40, chairman, Ralph L. Wentworth, '48; *Banquet* — Oscar H. Horovitz, '22, chairman; *Dinner* — Sidney L. Kaye, '30, chairman, Miles P. Cowen (Staff), and William Morrison (Faculty Club); *Gifts and Prizes* — David W. Skinner, '23, chairman, H. E. Lobdell, '17, Henry B. Kane, '24, Donald P. Severance, '38, D. Reid Weedon, Jr., '41, John W. Sheetz, 3d, '42, and John T. Fitch, '53.

As another item of business, nominees for posts on the M.I.T. Corporation or in the Alumni Association, as recorded in the March issue of The Review, were announced. New Council members were announced, as were also changes in class affiliation.

In reporting on the Alumni Fund, Theodore T. Miller, '22, chairman of the Alumni Fund Board, reported that, as of February 27, the sum of $350,000 had been contributed by 8,370 Alumni. This year effort is being directed toward increasing the percentage of Alumni contributing to the Alumni Fund.

Upon the close of the business portion of the meeting, the Council had opportunity to hear James R. Killian, Jr., '26, President, speak on recent developments at the Institute, to listen to Richard L. Balch, Director of Athletics, speak on the Institute's current athletic program, and to gain insight from Theos J. Thompson, Associate Professor of Nuclear Engineering, regarding the nuclear reactor to be built as soon as authorization is received from the A.E.C.

M.I.T. Photo

Godfrey L. Cabot, '81, receives from Horace S. Ford a leather-bound document, signed by officers of the Alumni Association, in felicitation of his 95th birthday on February 26. Dr. Cabot's activities span the full life of M.I.T., for he was born 43 days before the charter was granted to the Institute. Dr. Cabot is the senior Alumnus of M.I.T., a life member of the M.I.T. Corporation, has been awarded four honorary doctorates, is affiliated with 22 academic, scientific, learned, historical, institutional, aeronautical, and civic organizations including five colleges. In May, 1953, at the age of 92, Dr. Cabot was honored as the Grand Old Man of the Natural Gas Industry.

Alexander, Professor of Industrial Management

WIDELY known for research on economic and industrial problems, Sidney S. Alexander, economic adviser to the Columbia Broadcasting System, will come to M.I.T. on July 1, 1956, as professor of industrial management. His appointment was announced in January by E. P. Brooks, '17, Dean of the School of Industrial Management, who said:

"Dr. Alexander's imaginative and versatile mind, which is reflected by his extensive experience in research, especially fits him for this assignment in the School of Industrial Management. In addition, he will help formulate large-scale research in industrial management with emphasis on the interrelationship with the social sciences."

Dr. Alexander holds undergraduate and graduate degrees from Harvard University. Since 1946 he has been associated with many government and industrial studies of both international and industrial economics.

As economic adviser to C.B.S., Dr. Alexander has been responsible for identifying, analyzing, and appraising long-term developments affecting the company. After his M.I.T. appointment becomes effective, he will continue to work on these problems as a consultant to C.B.S.

Before joining C.B.S. in 1952, Dr. Alexander supervised and engaged in research in economics at the International Monetary Fund. A native of Forest City, Pa., Dr. Alexander studied for one year at King's College, Cambridge, England, after graduation from Harvard in 1936. He later returned to Harvard for graduate study.

Since then, he has been associated with the National Bureau of Economic Research in New York, the U.S. Office of Strategic Services, Columbia University, the U.S. Treasury Department, the U.S. Department of State, the Rand Corporation, and the President's Materials Policy Commission. From 1946 to 1949, Dr. Alexander served as assistant professor of economics at Harvard.

Popular Science Lectures

THIS year two Popular Science Lectures have been sponsored by the M.I.T. Society of Arts. The first, scheduled on March 18, entitled "Isotopic Tracers and the Synthesis of Body Tissues," was delivered by Professor John M. Buchanan, Head of the Division of Biochemistry at the Institute.

The title of the second and final in this program is "The Promise of Nuclear Energy" and will be given on April 8 by Manson Benedict, '32, and Thomas H. Pigford, '48, Professor and Associate Professor, respectively, of Nuclear Engineering – both of the Department of Chemical Engineering at M.I.T.

The Popular Science Lectures are presented on Sunday afternoons at four o'clock in Huntington Hall at M.I.T. Tickets for the lecture on April 8 may be obtained free of charge by writing to the Society of Arts, Room 4-434, M.I.T., Cambridge.

Science Teachers' Scholarships

A SERIES of special scholarships aimed at increasing the nation's supply of adequately trained secondary school science teachers has been established at the Institute, according to Dean Thomas P. Pitré, Director of Student Aid. Beginning next fall, the Institute will award a number of scholarships in amounts ranging up to full tuition to junior students who have elected the Institute's professional program in science teaching. Scholarships will be renewable.

In announcing the new scholarships for prospective teachers, Dean Pitré emphasized that the current critical demand for scientifically trained personnel has spotlighted a national deficiency, at the secondary school level, of properly qualified people in science teaching, and stated:

> Institutes of technology have a direct responsibility to do their part in helping to remedy this situation. The establishment of these new M.I.T. scholarships, which we hope will encourage more students of science and engineering to prepare for teaching in the secondary schools, is one of the steps we at M.I.T. have taken to meet our responsibilities in this regard.

Photo-Arts

Walter G. Whitman, '17 (center), Head of the Department of Chemical Engineering at M.I.T., who was secretary-general of the first United Nations International Conference on the Peaceful Uses of Atomic Energy, receives from William Van Kleeck (left), chairman, Federation of Student Engineering Societies of Drexel Institute of Technology, that institution's annual Science and Engineering Award. James Creese (right), President of Drexel Institute, looks on. Dr. Whitman, as Secretary-General, was cited "in recognition of his contributions to the science of chemistry" and "in appreciation of his invaluable services to our country and to all mankind . . ."

The M.I.T. science-teaching course was established in 1951 as a joint program with Harvard University's Graduate School of Education. It offers a combined five-year curriculum which leads to the degrees of bachelor of science in general science at M.I.T. and of master of arts in teaching at Harvard.

The undergraduate phase of the combined program is largely at M.I.T., although some Harvard courses begin as early as the third year. In the fourth and fifth years the student takes courses at both institutions and draws on the educational resources of both.

Review of Modern Physics

MARCH 9, 1955, was the date on which members of the Visiting Committee on the Department of Physics* met with members of the M.I.T. Administration and Faculty in a review of progress in the Department of Physics.

The increased enrollment at the Institute, particularly at the undergraduate level, places a heavy load on the Freshman, Sophomore, and especially the Junior Laboratories, and the problems thus raised were discussed by the Committee. During the year 1954-1955 the Freshman Laboratories in Physics were used by 1,000 students; the problem of suitable laboratory facilities will be even more difficult for the Sophomore Class in 1955-1956, but can be solved by running scheduled laboratory classes until 6:00 P.M. However, a severe problem will arise if a large fraction of the 126 freshmen who have indicated Course VIII as their choice do continue into the Junior year. Neither money nor increased staff would quickly solve this problem, which is one of space and specialized equipment. There is already an increasing load on the Department in third and fourth year, as well as graduate, subjects occasioned by more and more of the engineering courses increasing the physics content of their curricula. With a steadily increasing service load in third (and later) years physics subjects, it seems inevitable that we must soon face the problem of providing advanced laboratory instruction for nonphysics majors. This raises a very serious space problem, the solution to which is not apparent.

There were five brief reports on some of the research activities of the Department. Professor John C. Slater reported on the work of the Solid State and Molecular Theory Group. He pointed out that quantum theory in its early days had recognized that approximations were necessary, but that now the time had come when it was possible to put things on a really solid basis. The availability of high-speed computers, such as Whirlwind, has made possible the exact solution of many problems hitherto beyond reach. William W. Buechner, '35, Associate Professor of Physics, discussed new methods for rapidly acquiring large amounts of experimental data on energy levels of light nuclei from the Office of Naval Research generator. The outstanding features of this work are the significant increases in precision and resolution. Professor Philip M. Morse discussed the high-speed computing methods now available, especially the work of Whirlwind I, and pointed out the need of establishing a program of independent support for this type of activity which serves as an essential tool for many groups. Professor Victor F. Weisskopf gave a brief survey of the work going on in the theoretical group, pointing out the close co-operation with the experimental side and stressing the emphasis on efforts to stimulate new and creative ideas, rather than to develop erudite mathematical techniques. Malcom W. P. Strandberg, '48, Associate Professor of Physics, then reported on the work going on in the field of microwave spectroscopy. He pointed

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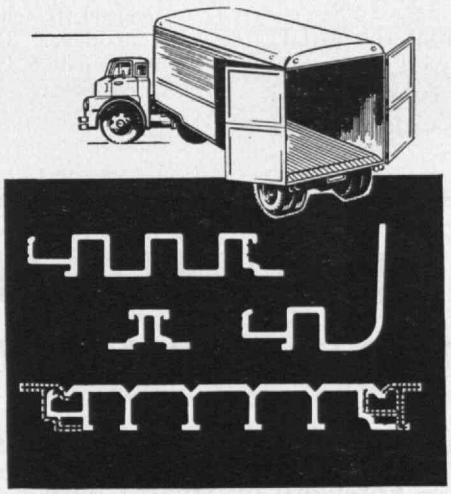
* Members of this Committee for 1954-1955 were: Thomas C. Desmond, '09, chairman, Henry A. Morss, Jr., '34, Ralph P. Johnson, '36, Leonard I. Schiff, '37, Edward U. Condon, Mervin J. Kelly, Alfred L. Loomis, Isidor I. Rabi, and Alan T. Waterman.

Two American scientists were honored by Cuba recently when Robert S. Harris, '28, M.I.T. Professor of Biochemistry of Nutrition, and Robert R. Williams, President, Williams-Waterman Fund of the Research Corporation, were awarded the Carlos J. Finley National Order of Merit Award. Participating in the ceremony at Havana were (from left to right): Enrique Saladrigas, Director of Finley Institute; Dr. Harris; Carlos S. Humara, Minister of Health; and Dr. Williams. Dr. Harris serves as scientific adviser to several institutes of nutrition in various countries, and he and Dr. Williams are well-known in Cuba for their extensive work in the field of nutrition. In bestowing this award, tribute was paid to Dr. Finley who discovered the method of transmission of yellow fever.

BUSINESS IN MOTION

To our Colleagues in American Business . . .

A great many people have found that extruded shapes are desirable because they are produced to specific designs, thereby markedly lowering production costs. They are right, of course, but there are other benefits, now being taken advantage of by builders of truck bodies. Revere aluminum extruded shapes are produced in long lengths to meet customer specifications, and to dimensional accuracies so close that suitably designed shapes can be interlocked side by side, forming a tight and structurally strong floor assembly. This is the procedure being adopted by truck and trailer body builders.



The design is such that the shapes interlock in two directions, providing greater strength and tightness, yet assembly is easy. Another feature of the design is that the shapes used on one side of the center strip can be interlocked on the other side simply by turning them end-for-end.

Two types of floor sections are produced, one with deep channels for refrigerator trucks, or "reefers," the other with shallow V channels for dry cargo. The purpose of the deep reefer channel design is to provide the cold air circulation that is so essential to the preservation of cargo. An interesting and important feature of both types is that bolting to the truck subframe is made possible without going through the floor from inside the body. The bolts are hidden, and so leakage is prevented, there are no unsanitary areas, and no interference with loading and unloading.

Being aluminum, a truck floor made in this manner is appreciably lighter than one of the same dimensions that is all steel, or a composite of wood and steel. The result is that pay-load can be increased without danger of violating the restrictions on gross weight, or weight per axle, that are so prevalent. This alone, regardless of other advantages, is enough to make the new construction highly attractive to the trucking industry, which after all makes its money not on dead weight but on pounds of freight carried. Incidentally, freight handlers sometimes are rough, and drop heavy boxes on the truck floor. If damage results, as can happen to any floor, repairs can be quickly made, replacing only the damaged shapes without removing the entire floor. Thus the truck begins to roll again with a minimum of lost time and expense.

Revere considers that this development of aluminum extruded shapes for truck flooring is a major engineering accomplishment. The repeat orders received show that the body people and the truckers agree. However, if you do not build or buy truck bodies, just remember that American industry does not stand still, but always moves forward. It should pay you to make sure that your suppliers, no matter what you buy from them, keep you informed of every new development, as quickly as it is available.

REVERE COPPER AND BRASS INCORPORATED

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out the significant advance in the high precision now attainable in the measurement of the frequencies of absorption lines.

Together with the Physics Policy Committee and representatives of the Administration, the Committee discussed the question of the stand the Institute, particularly the Physics Department, should take in facing the inevitable increase in outside pressure for expansion which will result from the rapidly increasing number of students applying for admission. The general feeling was that the present size of the Physics Department, in regard to both its undergraduate and graduate activities, was near the optimum. It became evident that even a small expansion – say 10 per cent – would require a disproportionate expansion of staff and facilities in order to provide the quality of instruction and the amount of individual attention now available. In view of the fact that M.I.T. would in this way contribute such a small increment to the present output, the general feeling was that quality should not be jeopardized to provide this small numerical gain.

The Visiting Committee believes that the M.I.T. Department of Physics is functioning well at present, in spite of the pressing need for better laboratory and classroom facilities, which need it is expected may soon be met through the construction of the Karl Taylor Compton Laboratories.

Reviewed by the M.I.T. Corporation at its meeting on June 10, 1955, and by the Executive Committee on October 21, the report of the Visiting Committee was received for publication in The Review on November 8, 1955.

About Modern Languages

FIVE members of the Visiting Committee on the Department of Modern Languages met on March 8, 1955, for a review of the educational and research program of the Department.* Professor William N. Locke, in charge of the Department, and six Faculty members attended this meeting, as did James R. Killian, Jr., '26, President, Julius A. Stratton, '23, Vice-president and Provost, John E. Burchard, '23, Dean of the School of Humanities, and B. Alden Thresher, '20, Director of Admissions, all of whom represented the M.I.T. Administration.

The work of the Department was reviewed, not only those phases dealing with the usual language instruction for students, but also its research activities. At no other educational institution in the country are the opportunities for experimental research on

* Members of this Committee for 1954-1955 were: John J. Desmond, Jr., chairman, B. Edwin Hutchinson, '09, Antonio H. Rodriguez, '21, Horatio L. Bond, '23, Jean M. Raymond, '34, Franklin S. Cooper, '36, Elton Hocking, and W. Freeman Twaddell.

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THE INSTITUTE GAZETTE

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language as good as they are at M.I.T. Members of the Committee showed considerable interest in two research projects now in progress. In the first of these, Victor H. Yngve, Assistant Professor of Modern Languages, outlined the present work and plans for future development of the project on mechanical translation which he is directing in the Research Laboratory of Electronics. The present goal of the project is to set up the linguistic basis for translation of German technical articles into English by computer-type machinery.

The other research project conducted by a member of the Department staff, also in the Research Laboratory of Electronics, is the speech analysis project of Morris Halle, Assistant Professor of Modern Languages. He and three graduate students are attempting to identify the significant parameters of the sounds of speech.

The Committee discussed the topics recommended in the report of the Visiting Committee for Modern Languages in 1954. These topics were: (1) the specific aims of foreign language instruction at M.I.T.; (2) language requirements at the Institute for entrance, for the bachelor's degree, and for graduate degrees. Dean Burchard felt that subjects offered by the Department in the thought and literature of France and Germany could make a vital contribution to the humanities program at the Institute and perhaps they do. Great attention should be paid to the choice of sufficiently well-prepared teaching staff and the subjects should be conducted on an intellectual level comparable to that of the other junior and senior humanities electives. The Committee agreed that the place for elementary language instruction is not in college but rather in secondary school, or preferably even earlier.

On the topic of the aims of language instruction at the Institute, the Committee believes that the primary aim should be the attainment by every student before graduation of some real competence in at least one foreign language. It was suggested also that it might be within the province of the Department to see that foreign students attain some competence in English. This subject was not discussed and might well be put over to the Visiting Committee agenda of next year.

American students should begin their study of foreign language early and should, in most cases achieve considerable competence before they enter the Institute. A small proportion of our entering students do have sufficient mastery of German or French to be able to read the literature and discuss ideas in the foreign language. This level of achievement is about that which the Committee felt every educated man, and hence every graduate of M.I.T. should have as a minimum. The suggestion of the Committee with respect to specific means of assuring the student's competence in at least one foreign language would be that each student give proof of his ability to handle

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A G-E Progress Report on . . .

THE CORPORATE ALUMNUS PROGRAM'S FIRST YEAR

THE Corporate Alumnus Program was begun as an experiment, to supplement—not to supplant—General Electric's overall program of assistance to students and to schools and colleges.

Principal objective was the further encouragement and support of the colleges and universities from which General Electric employees received their higher education. The Plan, briefly, was the Educational and Charitable Fund's decision to match gifts up to $1,000 of individual G-E employees to the accredited colleges and universities from which they held degrees.

WEIGHING THE RESULTS

Following are the four original objectives, and, after each, a statement of attainment, the realization of which contributed to the decision to continue the Plan, with liberalized provisions, in 1956:

OBJECTIVE—To provide incentive for substantial and regular contributions by the employees who directly benefit by the education.

ATTAINMENT—Eligible employees, under the Plan, increased their average gifts from slightly under $20 to $39.18.

OBJECTIVE—To recognize the joint benefits of education to employer and employee by matching contributions up to $1,000 during the year.

ATTAINMENT—Approximately 5,100 employees made gifts to 359 colleges in amounts totaling $200,000. The essentially unrestricted amount, matched by the Fund, is equivalent to the average earnings on about $4,000,000 in endowment.

OBJECTIVE—To stimulate colleges to more active solicitation of alumni support.

ATTAINMENT—College administrators report special alumni-fund activities, stimulated by the Program and the publicity it produced, have resulted in substantial increases in alumni giving.

OBJECTIVE—To provide a pattern of corporate support which might be followed by other companies.

ATTAINMENT—At least 12 gift-matching programs have been established by other companies, all incorporating some elements of the Corporate Alumnus Program.

QUID PRO QUO

The Corporate Alumnus Program has its basis in the concept of something received for something given. Still in an evolutionary stage, it recognizes the rapid growth of corporate requirements for college-trained people and the simultaneous enlargements of the colleges' needs for funds—operating funds as well as capital. It is simply giving substance to a belief that our common progress can accelerate to meet a growing need if the beneficiaries—whether individual or company, or both—recognize a debt and do something about it in proportion to value received.

THE INSTITUTE GAZETTE

(*Concluded from page 304*)

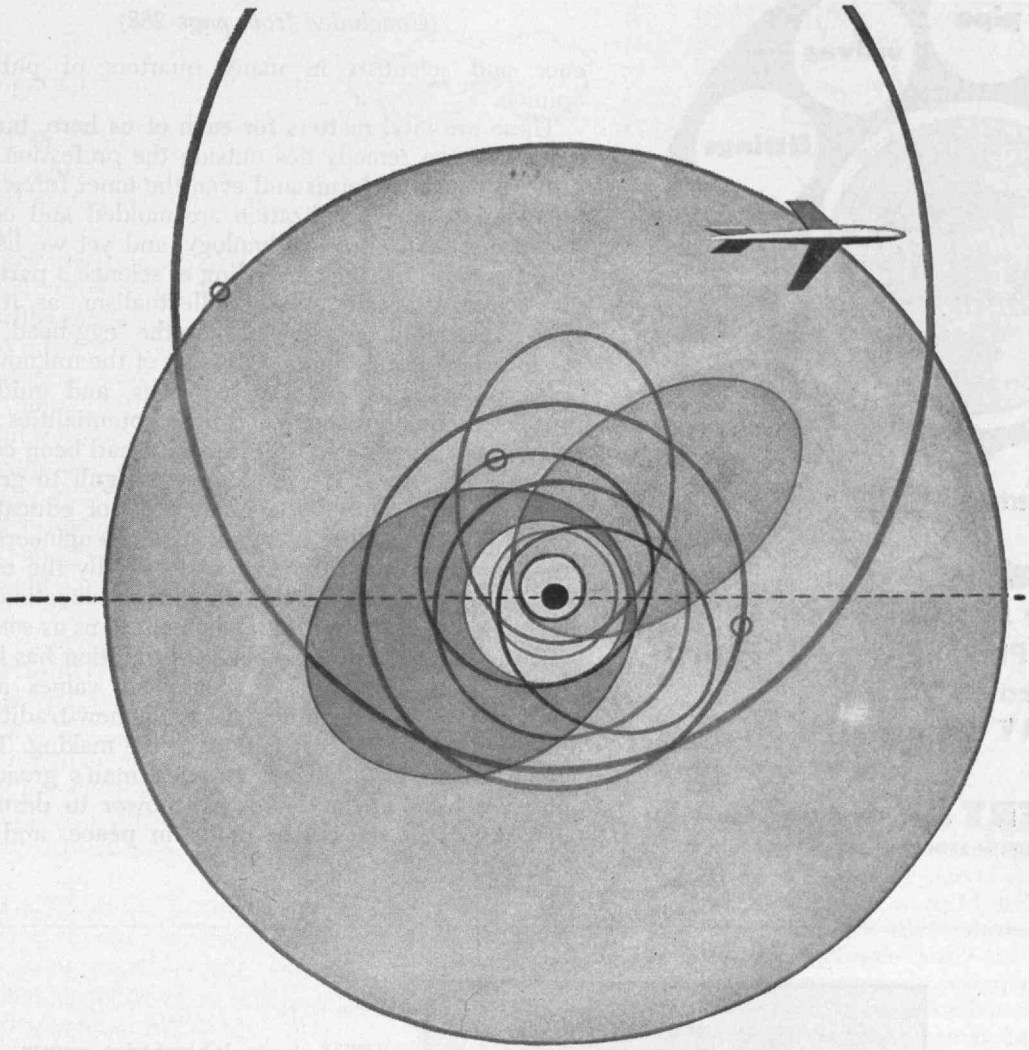
the language at some time before or during his course of study at the Institute.

There was sentiment that a requirement of language study for admission might be an effective way to secure the Committee's aim. The Committee feels that a requirement of minimum achievement in a foreign language for admission to the Institute would be desirable if, in the opinion of the Faculty, it resulted in bringing in students of greater breadth of background and if it stimulated some to get the real working knowledge of one language which, as educated men, they should have before graduation. An admission requirement would release undergraduate time, open the way of the student to foreign language humanities subjects or advanced language study, and encourage the study of elementary language in primary and secondary schools where the facts of psychological and physiological development show it can best be done.

Professor Thresher suggested that a rigidly enforced admission requirement would prevent certain good students with no foreign language study from coming to the Institute. The Committee felt that in really exceptional cases, this requirement might be waived as is done with the other admission requirements, but that the existence of a foreign language requirement would ensure a high standard of excellence among the freshmen.

As concrete recognition by M.I.T. of the fact that command of at least one foreign language is part of the essential equipment of the educated man, the Visiting Committee on Modern Languages recommends that command of one foreign language be a condition to the granting of the bachelor's degree. As an encouragement to the beginning of foreign language study at an appropriately early age, the Committee recommends that knowledge of one foreign language be re-established as a requirement for admission. The Committee recommends that details of administration of these two requirements shall rest with the Administration, Faculty, and admissions authorities.

The report of the Visiting Committee was reviewed by the M.I.T. Corporation at its meeting on June 10, 1955, and by the Executive Committee on October 21. Authorization for publishing this report in The Review was received on November 8, 1955.



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SCIENCE AND THE EDUCATED MAN

(*Concluded from page 288*)

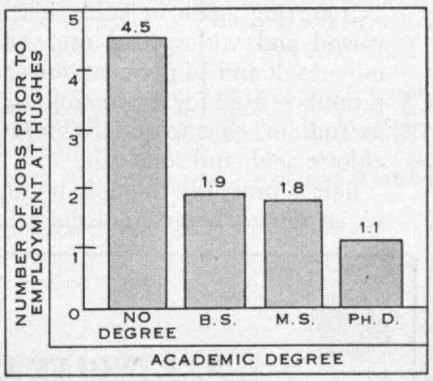
ence and scientists in many quarters of public opinion.

These are vital matters for each of us here, but I think that the remedy lies outside the profession itself. All the outer forms and even the inner forces of our contemporary civilization are molded and controlled by science and technology, and yet we have failed to make the understanding of science a part of our common culture. Anti-intellectualism, as it is called, the thinly veiled hostility to the "egg-head," is the inevitable symptom of a distrust of the unknown. "Electronic brains," nuclear weapons, and guided missiles are modern magic and their potentialities for evil are as real as though in fact they had been contrived by the devil. We must allow no gulf to grow between scientists and the great body of educated people. The education of scientists and engineers is now too serious a matter to remain wholly the concern of the profession itself. The liberal education of all people is a matter of equal moment to us as scientists. In our generation the classical tradition has lost meaning and relevance. It contained values and standards that we must preserve in the new tradition of scientific learning that is now in the making. The age in which we live may provide man's greatest epic. We have in our hands the power to destroy ourselves or to survive in unity, in peace, and in prosperity.

Education and Job Change

Some of the young fellows on our staff have been analyzing our files of personal data regarding scientists and engineers here at Hughes. What group characteristics would be found?

With additional facts cheerfully contributed by their colleagues they have come up with a score of relationships—some amusing, some quite surprising. We shall chart the most interesting results for you in this series.



The above chart represents the number of positions held prior to employment at Hughes—by academic degrees (and by lack of a degree). The Ph. D. has changed jobs the least. Data obtained from a 20% random sample of the 2400 professional engineers and scientists of Hughes Research and Development Laboratories.

Scientific Staff Relations **Hughes**

In our laboratories here at Hughes, more than half of the engineers and scientists have had one or more years of graduate work, one in four has his Master's, one in 15 his Doctor's. The Hughes research program is of wide variety and scope, affording exceptional freedom as well as exceptional facilities for these people. Indeed, it would be hard to find a more exciting and rewarding human climate for a career in science. Too, the professional level is being stepped up continually to insure our future success in commercial as well as military work.

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SALT OF THE EARTH

(Concluded from page 290)

In the United States, large solar salt plants are located in Alameda and San Mateo near San Francisco, and at San Diego. Methods for preparing solar salt will vary according to the location of the operation. In California, the method is essentially as follows:

At high tide, water is admitted through tide gates into ponds surrounded by levees about 10 feet high. Water is retained in these tide ponds for about two weeks and then pumped to secondary ponds where it is allowed to remain until it contains 6.5 per cent salt. Under ordinary conditions at San Diego, Calif., this will be about two weeks. The brine is next run into a second series of ponds, sometimes called "lime ponds" because calcium carbonate will settle out here, when the brine has reached a concentration of around 7.8 per cent salt. Brine is allowed to stay in these ponds until the salt concentration has reached 9.25 per cent, and is then run to a pickling pond where it remains until it contains 24 per cent salt. When the salt concentration has reached nearly 14 per cent, calcium sulfate begins to settle out, and is almost entirely precipitated at 24 per cent salt concentration. From the pickling ponds, the brine is pumped to crystallizing ponds where salt starts to crystallize when the concentration has reached 25 per cent, and when concentration has reached about 30 per cent, the mother liquor from the crystals is pumped to bittern ponds. Bittern is used for the manufacture of bromine and gypsum.

Harvesting of the salt usually begins in August and continues until the rainy season which generally starts in November. The salt cake is broken with a special plow and subsequently gathered by a dragline into dumpcarts. The salt is washed with brine from the pickling ponds, kiln dried, and stored in stockpiles. It must be refined, either by rewashing, grinding and screening, or by recrystallization in vacuum pans or grainers.

Solar salt comprises about 5 per cent of the total United States salt production.

Referring again to Table 1, it is seen that salt has varied and widespread use. About 20 per cent of mined salt and 14 per cent of salt produced by evaporation are used for the manufacture of such chemicals as sodium, caustic soda, chlorine, salt cake, hydrochloric acid, and soda ash.

Salt is probably the only natural resource of which we seemingly have an inexhaustible supply.

"A new era is beginning...

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"When men go to the moon and planets, electronically-controlled skycraft will take them there. Aviation maps will be studded with stars as well as with cities. New developments in aeronautics will go on and on. Success opportunities and careers will continue to develop for ambitious young men in this exciting field where a new era is beginning."*

LEE De FOREST

Appropriately qualified to speak for aeronautics and other fields in which his own scientific achievements play an important part, Dr. Lee de Forest gives helpful counsel to young graduates headed for successful, rewarding careers.

His expression, "a new era is beginning," has particular significance at Northrop, world leader in the design, development and production of all-weather and pilotless aircraft.

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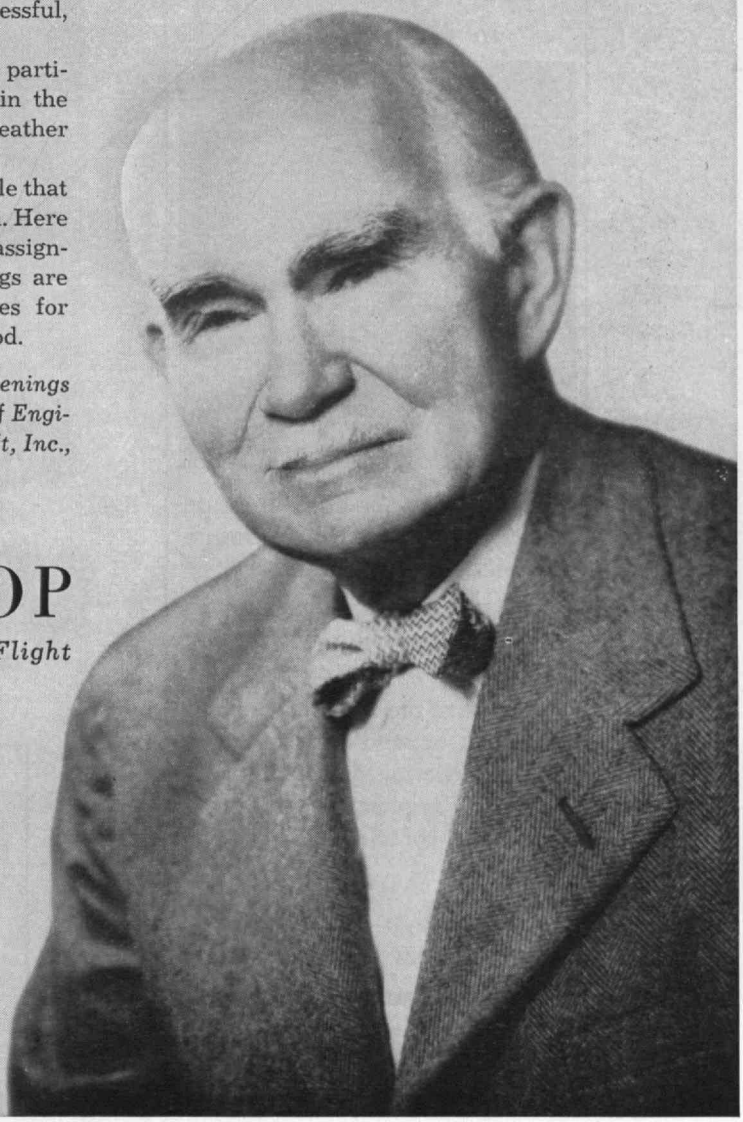


**A statement by Dr. Lee de Forest, pioneer in radio.*

ENGINEERING AND SCIENTIFIC EDUCATION

(*Continued from page 292*)

two years we added better teaching, better school administration, and better use of school facilities, it is quite possible that by the time a young man reached the age of 18 he could have completed the equivalent of the present-day college course. This is not as farfetched as it may sound. Something close to this has been achieved in Europe.

In this time of acute teacher shortage in our schools we might well consider relieving them of the problems which could just as well be taken care of in the home or by other activities. Under pressure from various groups, courses are being given whose educational value is questionable. Nearly half of our high schools offer little or no instruction in physics, chemistry, or in mathematics beyond introductory algebra. The percentage of high school pupils who today study scientific subjects is indicative of this:

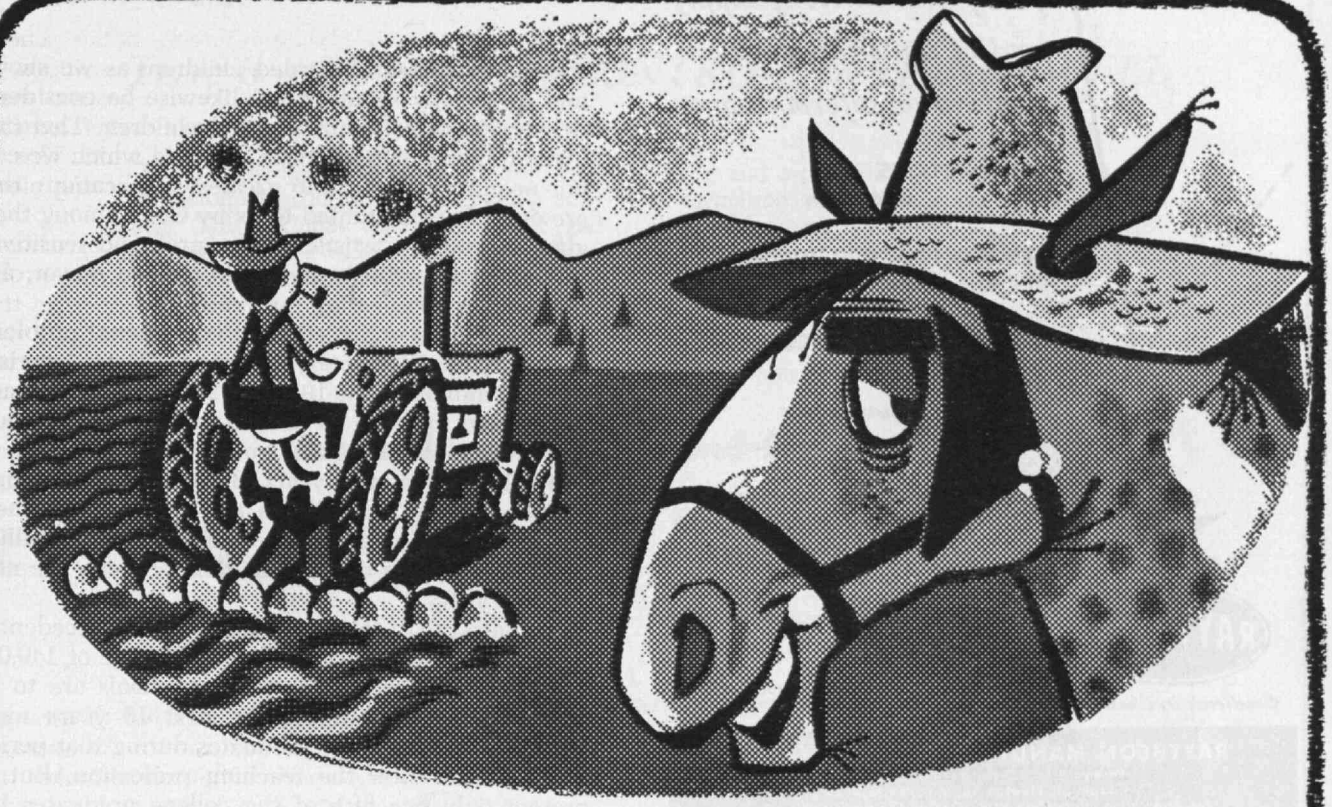
	1900	*1950*
Physics	23	4
Chemistry	10	7
Algebra	52	27
Geometry	27	13

The high schools have been required to arrange the necessary curriculum to take care of the average boy or girl. For many children the school makes up for what they cannot obtain at home; and, in some cases, it takes the place of the home. The ones who suffer are the gifted children. Some parents, those who can afford to, send their children to private schools. Whether or not these are really better than our public schools is a moot question. Certainly it is not altogether desirable to have children, during their impressionable years, associate only with those who have the same economic background.

A partial solution to the high school problem lies in setting up two different kinds of schools, one having higher standards than the other. There can be no valid objection to this because boys and girls with the necessary ability could go to the more difficult school. True democracy does not require of us that we hold back the qualified; it does require that we give each individual the opportunity to develop his talents to the fullest.

Neither of these arguments will bear critical examination. If it is considered democratic to give

(*Continued on page 314*)



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ENGINEERING AND SCIENTIFIC EDUCATION

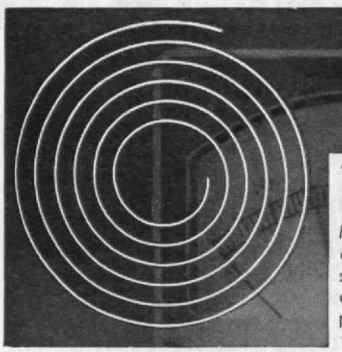
(*Continued from page 312*)

special care to our retarded children, as we should and must, why should it not likewise be considered democratic to help our brightest children. There are many things which are pure gifts and which we cannot acquire even by the greatest application: they are endowments granted to us by God. Among these gifts are creative artistic talents, profound sensitivity to art, music or literature, philosophical power, and scientific or engineering intuition.

Here are the unprecedented educational problems we now face: Elementary school enrollment has risen from 20 million in the 1940's to 29 million today, and is expected to reach 34 million in 1960. High school enrollment will increase from 7 million today to about 12 million in 15 years. But the severest impact will be felt by the colleges and universities where the attendance will increase from about 2½ million today to between 5 and 7 million between the next 10 to 15 years.

But faced with this formidable and unprecedented situation, we start with a present shortage of 140,000 qualified teachers. If the nation's schools are to be adequately staffed during the next 10 years more than half of the college graduates during that period will have to enter the teaching profession. But at present only one fifth of the college graduates become teachers.

(*Continued on page 316*)



ENGINEERING AND SCIENTIFIC EDUCATION

(*Continued from page 314*)

A partial solution and one which could be immediately effective is to enlist the aid of industry. Why cannot the scientists and the engineers from industry be given sabbatical leave to teach in our schools? The very shortage of college graduates and many of our educational problems have been created by the vastly increased requirements of industry. In 1900 the ratio of engineers to other workers was one in 300; today it is one in 60 — and in highly advanced industries it has already reached the figure of one for about every 20 workers.

Industry is today short more than 40,000 engineers and will require a minimum input of 30,000 for many years to come. The only serious attempt made by industry to solve this problem has been to offer considerably higher salaries to young college graduates. This has resulted in an unhealthy situation where the small number of graduates are being sought after by many organizations. Recently, at one college, the same 200 members of the graduating class were interviewed by representatives of nearly 500 companies. This is not recruitment; it is inflation. We have learned in the case of goods that inflation can only be solved by greater production; this is true of college graduates as well. There is danger to the young graduates in being sought after so avidly. Success is too easily achieved, and he gains it so quickly and so easily that he has had no time to learn the humility to handle success, or even to realize that he will need humility.

It is not farfetched to expect industry to help carry this social obligation. In present-day America the business corporation is not a business device alone — it has become a social institution and has acquired the obligations inherent in this concept.

Specifically, I suggest that, at their own expense, industrial organizations make available their scientists and engineers for one-year periods to teach in our high schools, colleges, and universities. The cost of this will be more than repaid by the larger number and better-trained students who will soon be available.

Another thing industry can do is to help finance education. This has already been started by some corporations in providing scholarships and other aid. I suggest that financial contributions to education

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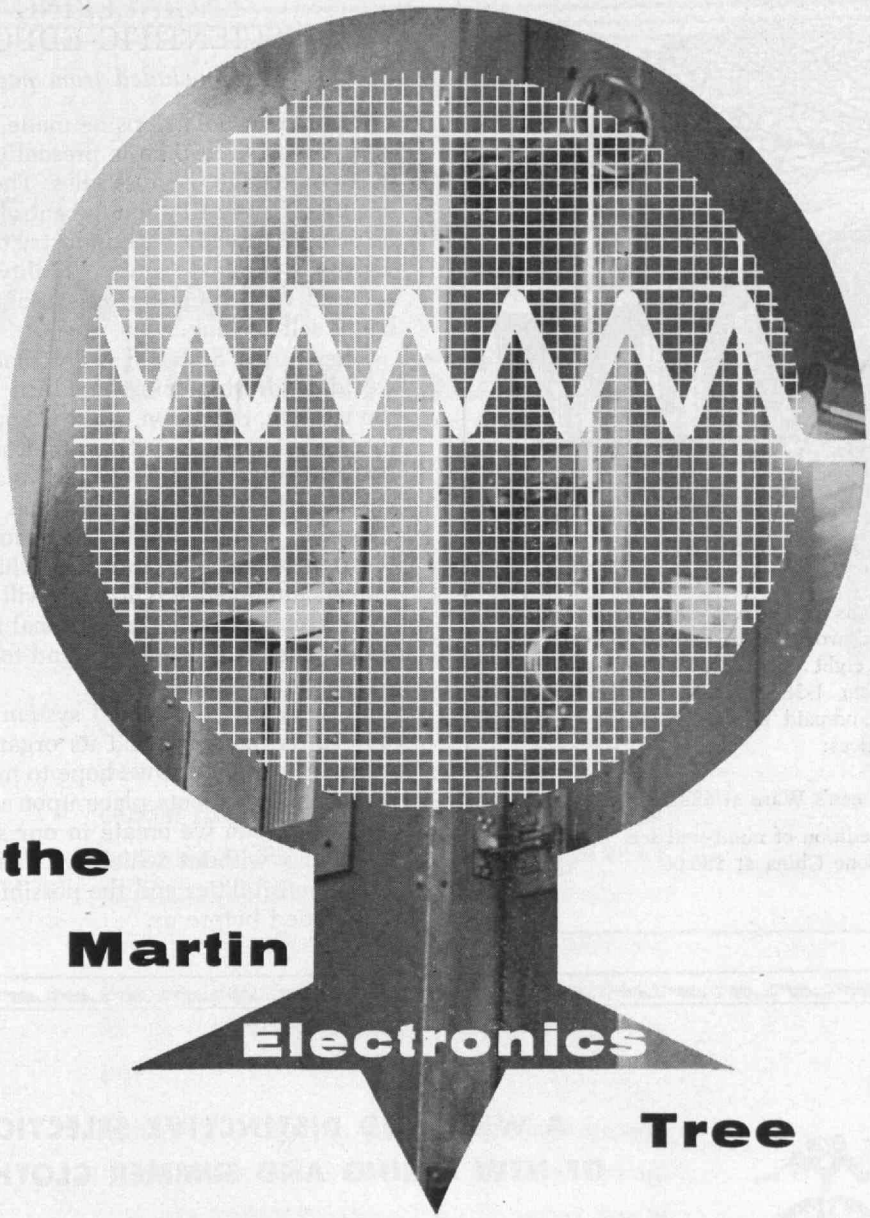

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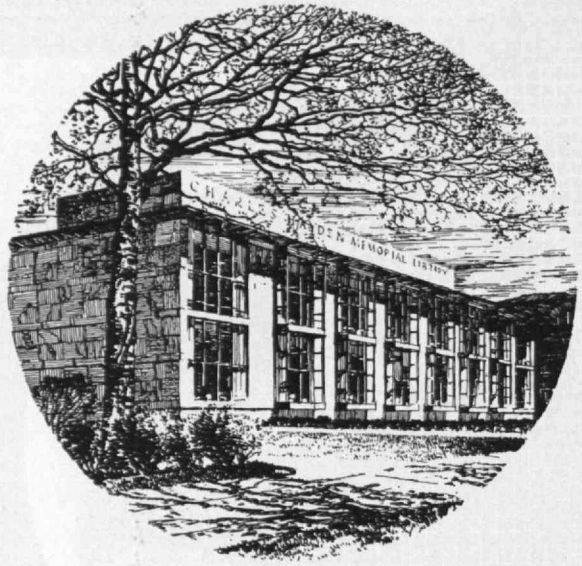

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ENGINEERING AND SCIENTIFIC EDUCATION

(*Concluded from page 316*)

rather than scholarships be made, but on a considerably larger scale than is presently the case, perhaps as a percentage of gross sales. These funds might be assigned for distribution to central groups of men not associated directly with industry or with the schools. This will eliminate any possibility of industry being accused of influencing education or the schools of being self-seeking.

The United States, if it is to succeed in its role of world leadership, must produce citizens who have the wisdom, the vision, and the knowledge to grapple successfully with world problems; citizens who can see critically through conventional values and who are able to subject to principle and to reason all claims to power. In the conditions of modern life the rule is absolute, the race which does not value trained intelligence is lost. It will matter little what other excellences our educational institutions possess if they neglect to recognize and to foster high ability wherever it is found.

Only by an educational system strengthened, not only in its members and its organization, but in its sense of purpose can we hope to meet the obligations which today's events place upon us. And only if we meet them can we create in our society the kind of leadership without which we cannot hope to meet the responsibilities and the possibilities that our time has opened before us.

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FREEDOM AND PROBABILITY

(*Continued from page 294*)

This diversity of conditions is particularly needed for creative work. In such work there has been too much stress on co-operation. In any form of creative work the first step must be taken by an individual. In the words of John Steinbeck, "Nothing was ever created by two men. There are no good collaborations, whether in music, in art, in poetry, in mathematics, in philosophy. Once the miracle of creation has taken place, the group can build and expand it, but the group never invents anything."*

A good illustration of mass treatment of individuals is Universal Military Training. The argument in favor of such training is that it is the fairest way to distribute the burden of defense. If the training is really universal, it may not, however, be the best way to obtain military strength. In modern war, science is the key to survival. A brilliant young scientist may contribute more through his own line of work than a thousand men in the field. No one can say how much his capacity for such work will be reduced by even a brief interruption for military training; for the period at which this training is given is the period when his ability to learn and to create is greatest. By providing special opportunities for young scientists and engineers, a dictator might do more to strengthen his nation than would be lost by denying all freedoms in the bill of rights. And prog-

(*Concluded on page 322*)

* John E. Steinbeck, *East of Eden* (New York: The Viking Press, 1952).

FREEDOM AND PROBABILITY

(Concluded from page 320)

ress under such a dictator might be even more rapid than in a democracy where all are reduced to a common level.

But some would ask why should we continue forever to advance? In terms of conventional morality a simple answer is that failure to make all possible advance is immoral. Helping others is the central feature of Christian ethics. These others are not only all now living but all who will live in the future. The advances we make contribute to the welfare of the present and to that of all future generations. The greatest contributions to human welfare are not made by those who serve the people, but by those who determine how to serve. The greatest contributions to engineering, for example, are not made by engineers but by physicists. The greatest contributions to medicine are not made by doctors but by chemists and biologists. The greatest contributions of all are made by those who establish the abstract underlying principles. For example, Newton probably contributed as much as any individual in the last thousand years. For Newton's work laid the basis for the power age in which the labor of human muscles was replaced by that of machines.

Thus whether we consider life from the point of view of religion or science the natural objective is perpetual advance, and this will be most rapid if each individual has the opportunity to do his best. When the proper course is known, action can be directed by rule or law. But when the proper course is not known, each individual should be free to go his own way to provide the greatest diversity of action and therefore the greatest probability that somebody will be right.

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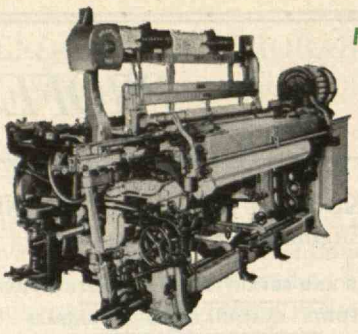

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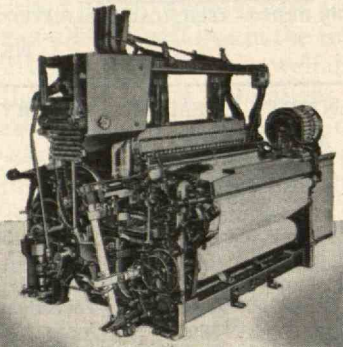

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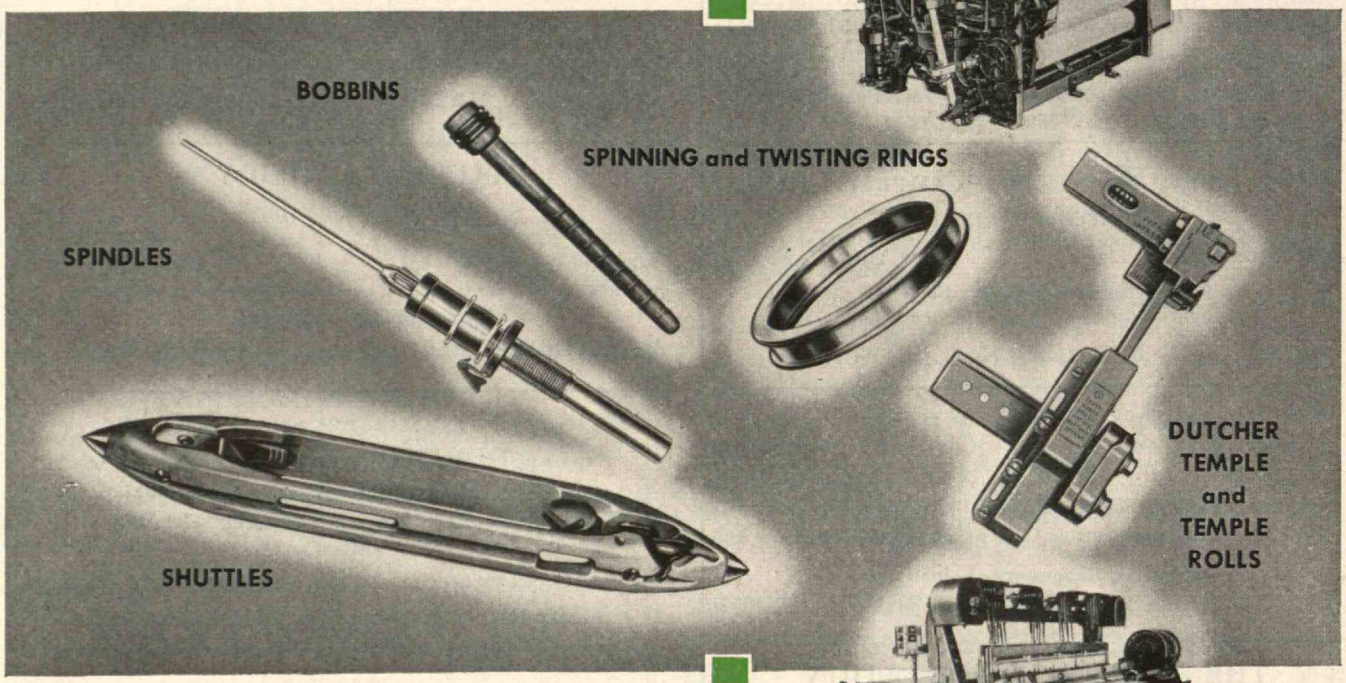

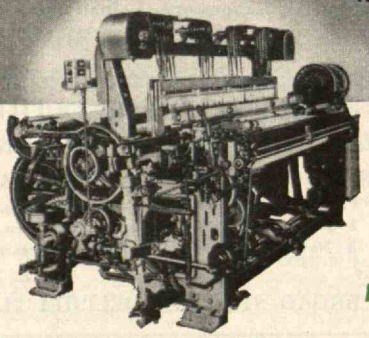

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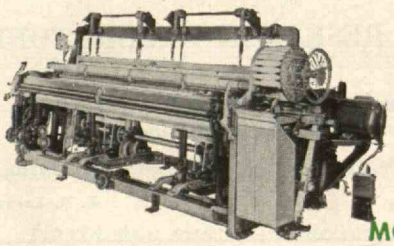

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ATLANTA, GA.
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SPARTANBURG, S. C.

Alumni AND Officers IN THE News

Up The Ladder of Success

JOHN M. FRANK'07 has been elected chairman of the board of ILG Electric Ventilating Company of Chicago, Ill. He had been president of the company since 1928.

LUIS DE FLOREZ'11, Rear Admiral, USNR, has recently been appointed president of the Flight Safety Foundation, Inc. Admiral de Florez also holds the position of director and consultant to the engineering firm he founded, de Florez and Company, and is on temporary duty with the Navy.

EARL P. STEVENSON'19, President of Arthur D. Little, Inc., has been appointed to the advisory board of *Industrial and Engineering Chemistry*, a monthly publication of the American Chemical Society. Credited with 24 patents and the author of many scientific articles, Dr. Stevenson is a consultant to the United States Army Chemical Corps and the Atomic Energy Commission and a member of the National Science Foundation Board. Dr. Stevenson will serve on the 15-man board for three years.

DUNCAN A. CRAWFORD'26 has been promoted to the newly created position of executive vice-president of the Atlanta Gas and Light Company. Mr. Crawford's new position adds the administrative, personnel and financial phases to his operating duties.

RICHARD J. COVENY'29 has been appointed a vice-president of Arthur D. Little, Inc. of Cambridge, Mass. Since he joined the staff in 1949, Mr. Coveny has guided the expansion of the company's services into new areas of technical economics such as industrial market research and diversification in the non-chemical industries. He was associated with Linde Air Products Company, Ethyl Corporation and the Fram Corporation for 20 years before coming to Arthur D. Little.

LESLIE E. SIMON'29 has been elected to the board of trustees of Illinois Institute of Technology. General Simon is one of the world's authorities in the field of quality control and his book, *An Engineer's Manual of Statistical Methods*, is the leading text in this field of engineering.

JAMES B. FISK'31 was recently elected to the board of directors of Bell Telephone Laboratories. Dr. Fisk, who has been with the Laboratories since 1939 was appointed to the position of director of research in physical sciences in 1952. In March of last year he became vice-president of research. Shortly afterwards he was elected executive vice-president of the Laboratories.

WENDELL N. CURRIER'37 has been appointed director of product standards, general offices, Campbell Soup Company. Mr. Currier joined the company as a chemist in 1931. He became chief chemist in 1934 and technologist in 1944. In 1947 Mr. Currier became assistant to the vice-president in charge of research and development. In 1955 he became director of formulas and procedures.

DAVID A. WRIGHT'38, President of the Lake Tankers and National Oil Transport Corporations, has been elected president of the New York State Waterways Association.

BENJAMIN H. DANZIGER'48 has been appointed manager of advertising and promotion for Climax Molybdenum Company. Mr. Danziger is a chemical engineering graduate and has an M.B.A. degree from the School of Business Administration at Harvard University.

Blue Ribbon Candidates

PAUL W. LITCHFIELD'96, LESTER D. GARDNER'98, and JEROME C. HUNSAKER '12 have been designated "Elder Statesmen of Aviation." They were elected by the board of directors of the National Aeronautic Association. The purpose of establishing a list of elder statesmen is to honor outstanding living Americans over 60 years of age who have made outstanding contributions of lasting value to aeronautics. Mr. Litchfield supervised design and construction of military training balloons and airships for service in World War I, built the Naval airships "Akron" and "Macon" and directed Goodyear Aircraft Corporation production in World War II. Mr. Gardner brought about the first restoration of the original Wright Kitty Hawk airplane, helped found international aviation groups, and established the IAS aeronautical Archives. Professor Hunsaker designed the Navy's NC-4 type planes which first flew the Atlantic ocean, built a pioneer wind tunnel, organized the first course in aeronautical engineering in America, and taught aeronautical engineering at M.I.T. for many years.

ELMER A. HOLBROOK'04 is the recipient of a citation by the Founders Engineering Society, American Mining and Metallurgical Engineers "for his notable leadership in teaching and administration in the field of mineral technology and industry education, for his administrative services in the field of mineral technology and for his encouragement, friendship and inspiration to his many students and colleagues."

ROBERT S. HARRIS'28, Professor of Biochemistry in the Department of food technology has been awarded the highest scientific honor that Cuba bestows, the Carlos J. Finlay award. Dr. Harris has been largely responsible for planning and organizing the FIM Laboratories of Nutrition in Havana. He has examined and analyzed many of the edible plants of Latin America, and as a result has encouraged the use of locally grown food products where it is evidenced that these could be a means to improve nutrition.

W. CHANDLER STEVENS, JR.'55 is a recipient of a Rotary Foundation fellowship for study in the British Isles. Mr. Stevens received his Sc.B. in Business and Engineering Administration.

Obituary

ELLISON C. MEANS'88, January 20
PRESTON RICHARDSON'92, May 23, 1955*
CHARLES F. GARLICHS'93, June 21, 1955*
HENRY F. COPELAND'94, January, 1956*
HENRY M. CRANE'95, January 21*
WILFRED BANCROFT'97
WALTER F. BUCK'97, January 3
FRANK I. HOWE'97, January 5*
ROBERT S. ALLYN'98, January 1*
HARVEY L. CURRIER'98, October 11, 1955*
WILLIAM W. STEVENS'98, January 8*
A. LORING SWASEY'98, January 7
GEORGE R. TOWNSEND'99, December 27, 1955
HARRY B. CHALMERS'00, December 1955*
GREENLEAF W. PICKARD'00, January 8
FRED W. CONNOLLY'01, May 9, 1955
LESLIE W. MILLAR'02, April 4, 1955*
CURTIS R. GRAY'03, July 16, 1955*
OSCAR G. THURLOW'04, January 21
CHARLES J. EMERSON'04, January 7
ELBERT FOWLER'05, Date Unknown
LEWIS J. LYMAN'05, May 28, 1955
CLARENCE N. STONE'06, June 20, 1955
WENDELL P. TERRELL'06, Date Unknown
BENJAMIN C. BAKER'08, December 3, 1955*
VICTOR M. FREY'08, January 4*
LINCOLN MAYO'08, January 8
HARRY HAVENS'09, January 23*
EDMUND J. HOOPER'09, November 2, 1955*
STUART SNEDDON'10
THOMAS C. FISHER'18, January 29
HAROLD A. KNAPP'17, January 19*
GRENVILLE L. HANCOCK'18, January 2
EDWARD J. SHIELDS'18, January 27
GORHAM L. CROSS'20, January 9*
CLEMENT J. HALLINAN'20, November 22, 1955
ROBERT D. FAIRBANKS'21, December 25, 1955*
VERNON H. SANDERS'21, 1952*
HAROLD A. BULL'22, 1955*
WILLIAM T. HAEBLER'22, February 6*
KERMIT E. MADDEN'22, January 2
WILLIAM H. LAZEAR'23, December 10, 1955
FAYETTE B. DARLING'27, November 1955*
RICHARD J. TITHERINGTON, JR.'28, January 7*
WILLIAM J. MILLER'33, February 26, 1953*
DONALD W. TAYLOR'34, December 24, 1955*
OSCAR E. ECKBLOM'35, December 17, 1955
AMES BLISS'39, May 26, 1955
HOWARD W. LUNDY'39, December 21, 1955
HAVEN G. FIFIELD'43, January 18*
JAMES F. JARMAN'43, January 8*
SETH BRANSBY'2-44, December 30, 1955
JOHN HEATH'54, July 25, 1955*
RUSSELL BOCKES'55, December 17, 1955*
ERNEST A. HAUSER, February 10

*Further information in Class Notes.

News from the Clubs and Classes

CLUB NOTES

Boston Luncheon Club

The M.I.T. Boston Luncheon Club met at the Union Oyster House, on January 19 with forty-one members present. Don Severance'38 announced the program for the Mid-Winter Alumni Meeting to be held at Walker Memorial on February 1.

Chairman Vincent Estabrook'36 then introduced Professor William N. Locke, Head of the Department of Modern Languages at the Institute, who spoke on Machine Translation of Languages. He stated that, at the present time, effort is being concentrated on the development of a means of mechanically translating technical papers from foreign languages into English. Basically the translation of documents requires three operations: (1) a means of "reading" the document and passing the information on to (2) a memory and interpreting device and (3) a means of receiving the translated material and writing or printing it. The existing high speed computers may be used for the second operation but the problem is to produce a machine to scan a printed page (or receive spoken words) and convert the information into electronic impulses in such a manner that the computer can use them. Also, a machine must be developed to receive impulses from the computer and typewrite (or "speak") the translation in understandable English.

Professor Locke stressed the point that the work is greatly complicated by the fact that most words have several meanings. Whereas we depend on the context of the material for the correct meanings of the words, it is impossible to build a machine that will have any understanding of the subject being translated. Therefore the machine must have instructions to cover all possible situations.

As a starting point the instructions fed into the machine would be broken down into (1) vocabulary and (2) grammatical use of words. Experience has shown that in English the meaning of a word may be pretty well established if the two words preceding and the two words following the word in question are examined. One approach would be to scan each word successively as the center of a group of five words. However, this would require an impracticably large and complicated memory unit.

Special case endings (as are used in German) and punctuation marks are useful in translating so the machine should be capable of "recognizing" them.

In addition to translating scientific papers there is a great field for mechanical translating equipment in routine commercial operations such as reading and recording the data from printed checks and documents. Professor Locke explained that most of the research in this field is being done at the Institute because of the availability of expert linguists with mathematical and engineering backgrounds plus the opportunity to cooperate with the computer research program. — George A. Parkhurst'36, *Secretary*, 1284 Soldiers Field Road, Boston, Mass.

Buenos Aires

The annual social Reunion of the Club was held on December 17, 1955 at the residence of L. A. Preloran'22 in the suburbs of Buenos Aires. The members present with their respective wives were: J. H. Flynn'05, R. J. Ottonello'22, L. A. Preloran'22, L. A. Igartua'23, J. Worcester'30, A. Marin'38, E. E. Krag'44, P. Vicien'45, O. L. Briozzo'46, and E. Hoigne '45. Also present were A. F. Alliaga Garcia'43, E. R. Abril'41, and Mr. Benegas of Boston University.

Present as special guests from the M.I.T. Club of Montevideo were: Mr. and Mrs. A. Marques'27, Mr. and Mrs. F. Ravecca, Jr.'23, and Mr. and Mrs. J. C. Sacco'28. It was a very congenial Reunion and we all enjoyed Mrs. Margery Preloran's copious and delicious salads, baked beans, rolls, cakes, hamburgers, frankfurters and pies with a real "Bostonian Taste."

The assistance of representatives of the M.I.T. Club of Uruguay was very much celebrated as a result of the Government change that made possible the interchange of people between the two countries of Uruguay and Argentina. The following are the actual officers of the Club: R. J. Ottonello'22, President, A. F. Aliaga Garcia'43, Vice-president, C. F. Reed'24, Representative, and Pedro Vicien'45, Secretary-Treasurer. — Pedro Vicien, *Secretary*, Papelira Parana, Corboda 890, Buenos Aires, Argentina.

Southern California

On January 18, 1956 the M.I.T. Club of Southern California held its annual dinner meeting at the University Club in Los Angeles. Club President Samuel Lunden'21 announced that the 1956 Regional Conference would be held March 17 at the Ambassador Hotel.

Club officers installed for the year were: Harold R. Seykota,'39, President, Anthony M. Thormin'27, First Vice-president, Richard S. DeWolfe'36, Second Vice-president, Robert Welles'15, Treasurer, Jay Zeamer'40, Secretary, and Homer Davis'24, Assistant Treasurer. The program for the evening was a fascinating "Mid-Century Review of Music, Art, Architecture." The distinguished panel of speakers who discussed the subject with illustrations, slide exhibits and music were: Arthur Gallion, Dean, Department of Architecture, University of Southern California, Walter Jarvis Barlow, Director, Los Angeles County Art Institute and Dr. Gustave Albrecht, Musicologist.

It became known to the Club at this meeting that William H. MacCallum'24, a past president of this Club, has been elected by the M.I.T. Corporation for a two-year term as an Alumnus representative on the Visiting Committee of the Department of Humanities.

Members present at this meeting were: Walton G. Harrington'10, Raymond B. Stringfield'15, Robert Welles'15, L. B. Hitchcock'20, Samuel Lunden'21, Rockwell Hereford'24, William MacCallum'24, Philip K. Bates'24, George Cunningham '27, Anthony Thormin'27, Bernett C. Turner'28, R. B. Atkinson'29, Harry E. Shoemaker'29, Thomas C. George'34, P. E. Golsan, Jr.'34, William P. Kennedy '35, Richard deWolfe'36, William F. Mullen'36, John M. Andreas'37, Robbins Ritter'37, Harold H. Straus'38, Alex Laker '39, Hal Seykota'39, Jackson R. Nichols '40, Jay Zeamer'40, James S. Cullison'41, David McKay'43, G. W. Bailey'46, Walter A. Sauter'46, Alvin A. Markus'47, Anthony Dowkout'50, H. Thomas Wilson'50, Arnold G. Kramer'52, Joe W. Marshall'53, William A. Shepard'54, Frederick West '54, and Chester G. Jaeger — Jay Zeamer, *Secretary*, 8109 Creighton Avenue, Los Angeles 45, Calif.

Fall River

Our Club members were the guests of our president, Robert C. Ashworth on Friday, January 20, at the Quequechan Club of Fall River. 32 were in attendance. Walter C. (Jack) Wood told us about boating at the Institute showing colored moving pictures of various races and of our new fleet of fibre glass plastic boats. We were interested to hear of the racing skill of John H. Foulds who recently graduated and is now a member of our Fall River Club. Yachting is of special interest to our Fall River group which includes Newport members, a number of whom are actively employed in the U. S. Navy. Colored reels of the last International Cup Races and of other races of the Cup Defenders were shown with intimate comments by Mr. Wood.

Some of our Club members may not know that we are represented on the Alumni Council by Malcolm G. Kispert, executive secretary to President Killian and Chief of the M.I.T. Budget.

Don Severance, Alumni Secretary, reminded us of the mid-winter meeting of the M.I.T. Alumni Association. During the refreshment period that followed the meeting Jack Wood and his yachting friends had an opportunity to talk over enjoyable experiences. Rus Pierce of Marion, Mass. and Bob Stewart of Woonsocket, R.I. were special guests. — Robert F. Burnett, *Secretary*, 56 N. Main Street, Fall River, Mass.

Indiana

M.I.T.'s Professor John Arnold, brought to Indianapolis by the joint efforts of the Indiana Association of M.I.T. and the Indianapolis Scientech Club, highlighted the initial 1955–1956 meeting on November

3, 1955. Professor Arnold, speaking from the platform of the Indiana War Memorial Auditorium, spoke on the subject of "Creative Thinking."

A second meeting, held January 18, featured Division Master Mechanic W. O. Sines of the B. and O. Railroad, who outlined the development of roads and equipment in railroading.

Word has been received by the Secretary from Dr. Herbert Kent'49 indicating that he is now associated with the University of Oklahoma, School of Medicine. Dr. Kent was formerly Chief of the Physical Medicine and Rehabilitation Department, Veterans Administration Hospital in Indianapolis.

It should also be remarked that an esteemed Alumnus, Arthur I. Franklin, of Indianapolis has been confined to his home and hospitalized a number of times this past year, but has been following the activities of the group through the meeting notices.

The attending membership to date includes the following: Mr. and Mrs. John H. Babbitt'17; Mr. and Mrs. Edgar B. Godley'26; Mr. and Mrs. Thomas G. Harvey'28; Mr. and Mrs. J. Raymond Ramsey'17; Mr. and Mrs. Thomas C. Dorste'47; Mrs. Spiros G. Pantazi'47; and Mr. and Mrs. Archie Towers. — S. G. PANTAZI, *Secretary-Treasurer,* 821 Broad Ripple Avenue, Indianapolis, Ind.

Northern New Jersey

The M.I.T. Club of Northern New Jersey co-sponsored the Regional Alumni Meeting in New York, at which the speaker was Dr. Walter G. Whitman'17 of the Institute. Dr. Whitman spoke of his experiences as Secretary-General of the "Atoms For Peace" Conference at Geneva, Switzerland, and described his experiences in obtaining the participation of the nations of the U.N., especially those on the other side of the Iron Curtain.

At the meeting of the New Jersey Club's Board of Governors on February 7, Treasurer Wenick'21 reported that the Club had an excess of income over expenses amounting to $519.86 during the period ending 12/31/55. Joe was congratulated by the Board for his successful membership follow-up campaign, resulting in a 40 percent increase over last year.

Chairman MacDonald'22 of the Placement Committee reported increased activity on the part of companies looking for men in the area, but no men available.

Program Chairman John Reid'48 reported further on the March dinner meeting, featuring Dean Burchard from the Institute. From the comments of those who heard Dean Burchard at the Institute during the First Alumni Officers' Conference last September, a very rewarding evening is in store. Wives are invited, and there will be a roast beef dinner according to Jim Shyne'43 and his House Committee.

John Reid also reported further on the Anhaeuser-Busch brewery tour and beer party to be held in May.

Don Spitzli'27 reported on the Club plans for continuing the local scholarship program started last year.

President Russ Westerhoff'27 appointed a nominating committee consisting of: Grover Paulsen'40, Chairman; George DesMarais'20, Rudolph Ozol'36, John Reid'48, Lyman Tremaine'23.

Under New Business, the Board of Governors unanimously adopted a resolution of Jack Andrews'33 that the Club build up its treasury until it can maintain a standing reserve of $1,000. — STUART G. STEARNS, *Secretary,* 25 Elmwood Place, Short Hills, N.J. JEROME E. SALNY, *Assistant Secretary,* Egbert Hill, Morristown, N.J.

New York Westchester

The annual golf outing of the M.I.T. Club of New York will be held at the Scarsdale Golf Club on June 5. All M.I.T. men and women in the Greater New York Metropolitan Area are welcome and asked to bring their friends and business associates. There will be a golf tournament. Prizes of two large cups, one for low gross, and one for low net, with small replica cups to be retained by the winners. Starting times will be from 12:00 to 2:00 p.m. Lunch will be available from 11:00 to 2:00 p.m. Dinner and a good evening's entertainment are planned. Reservations can be made by contacting the chairman of the committee, Eugene Smoley'19, The Lummus Company, New York City, or Joe Conrad, Executive Secretary of the M.I.T. Club of New York at Hotel Chatham, New York City. — WILBUR MYRON JONES, *Secretary,* 125 Parkway Road, Bronxville, N.Y.

Western Pennsylvania

The annual dinner dance, our third meeting of the year, was held in the pleasant surroundings of the University Club in Pittsburgh, on January 28. A total of 46 Alumni and guests, hardy souls who braved the rather nasty weather, were well rewarded for their efforts. — ANDREW A. MAROCCHI, *Secretary,* 445 Serpentine Drive, Pittsburgh 16, Pa.

Philadelphia

The annual meeting of the Club was held on January 24 at The Barclay with 125 members and guests in attendance. Guest speaker of the evening was our own Donald F. Carpenter'22, who showed full color films of the recent trip which he and Mrs. Carpenter made to India and other points in the Far East. Highlighting the films was the narrative supplied by Mr. Carpenter which sparkled with humor from beginning to end. The program gave those in attendance a deeper insight of the northern part of India, a part little known to most of us, as well as some unique views of the better known places.

Elected to office for the ensuing year were the following: President, Frank S. Chaplin'32; 1st Vice President, Samuel K. McCauley'41; 2nd Vice President, Kenneth S. Lord'26; 3rd Vice President, William H. Bertolet 3rd'48; Secretary, Richard M. Westfall'37; Treasurer, Charles W. Hargens, 3rd'41; Executive Committee, George E. Whitwell'14, Stuart J. Bugbee'27, Addison S. Ellis'32, Wiley F. Corl, Jr.'39, Graham H. Bell'42, Arthur H. Kuljian'48, and James L. Dwyer'54. Appointed as Assistant Secretaries were Herbert R. Moody'41 and Stephen B. Hazzard'43, and elected Assistant Treasurer was Joseph T. Lester'44.

The next meeting will be held on April 24, 1956, at the Hotel Du Pont, Wilmington, Del. For information about this meeting or any other matters contact the Secretary, Richard M. Westfall, RD #1, Kennett Square, Penna. — WILLIAM H. BERTOLET 3RD, *3rd Vice President,* 606 Highland Avenue, Glenside, Penna.

Puerto Rico

On February 3, 1956 the M.I.T. Club of Puerto Rico held a meeting at the "Colegio de Ingenieros" building. At this meeting a film loaned by the American Society of Civil Engineers, showing the construction of the Nikkatsu International Building in Tokyo, was exhibited. To conclude we showed two series of slides — one showing the work, activities, and environments for students at M.I.T. at the present time and the other owned by Antonio Kayanan'42 about South America. The general attendance was estimated at 48, composed of members and representatives of the College of Engineering, the Architects Institute, the P. R. Chapters of the American Society of Civil Engineers and the Contractor Institute of P. R. Several technical discussions arose among those present and the program was of general acceptance. — ULISES BARROS LOUBRIEL, *Secretary,* Box 9447, Santurce, Puerto Rico.

Rochester

Eugene R. Chamberlain, Assistant Director of Admissions at the Institute, was in Rochester for four days at the end of January. Mr. Chamberlain came here to visit the high schools in our area to speak to boys interested in pursuing careers in science or engineering. During his four days here Mr. Chamberlain visited 12 of our schools together with the educational counselor for the school. These visits helped the further the work of our educational council with the area schools.

Educational counselors and members of the Executive Committee of our Club met with "Gene" Chamberlain at a dinner Tuesday evening, January 25. Admission to M.I.T. was, of course, the main topic, but all facets of our work as educational counselors and representatives of M.I.T. in the area were discussed. — JAMES K. LITTWITZ, *Secretary,* 191 Rogers Parkway, Rochester 17, N.Y.

Washington

The third meeting of our 1955-56 social season was held at the Cosmos Club. We were very fortunate to have Dr. Detlov W. Bronk, President of the National Academy of Sciences and President of the Rockefeller Institute For Medical Research and former President of Johns Hopkins University, as our guest speaker. Dr. Bronk was a close associate of Dr. Compton and reviewed some interesting personal experiences with our beloved former president. Dr. Bronk spoke on "Man In A Machine Age" and delivered before a group of nearly 100 Alumni one of the most thought provoking talks that has ever been heard by the Club. Dr. Bronk's central theme was that engineers had not given proper consideration to the place of man in the design of machines and instruments. Upon conclusion

of his talk, William Ahrendt, Club President, bestowed upon Dr. Bronk the degree of Doctor of Philosophy of the M.I.T. Club of Washington, the first such degree ever given by the M.I.T. Club.

The next event on our calendar will be a ladies night dinner on March 22, which will feature a talk by a prominent woman speaker. — ANDREW F. HILLHOUSE, JR., *Secretary*, Apt. 839, 2800 Quebec St., N.W., Washington, D.C.

CLASS NOTES

• 1892 •

Arthur Ober and the Secretary were the only Class representatives at the mid-winter Alumni Association meeting on February 1 at the Walker-Memorial. We listened to a very interesting program under the direction of Dean Burchard.

The Secretary has just received a report of the death, last May, of another classmate, Preston Richardson, from a heart attack at his home, Adams Point Road, Barrington, R.I. Richardson was with us only one year and was not registered in any course. He put in a large part of his active career with the G. L. and H. J. Gross Company of Providence, R.I., but retired from active duty some five years ago.

The Secretary has practically no other news to report at the present time. He is looking forward to a Reunion at the coming Alumni meeting next June. — CHARLES E. FULLER, *Secretary*, Box 144, Wellesley 81, Mass.

• 1893 •

We regret to report that Charles F. Garlichs of Briarcliff Manor, New York, passed away on June 21, 1955. Mrs. Garlichs notified the Alumni office and they in turn sent word to us.

William R. Copeland has advised us that he has moved to Curve Street, R.F.D. #2, Framingham, Mass.

Your assistant secretary wishes she had more news of the Class members for The Review. — GEORGE B. GLIDDEN, *Secretary;* GERTRUDE B. CURRIE, *Assistant Secretary*, c/o Fay, Spofford & Thorndike, 11 Beacon Street, Boston 8, Mass.

• 1894 •

Once more it is the secretary's sorrowful duty to report that death has again invaded our lessening ranks and removed a much liked and respected **Classmate.** Henry Fillmore Copeland died at his home, 170 East 79th Street, New York, on Friday, January 26 of this year, at the age of 83.

No information is at present at hand as to the cause of death or the extent of his illness, which we hope was brief. Copeland entered M.I.T. with the majority of the class in 1890, coming from Brooklyn, but was a resident of New York City at the time of graduation. He chose the course in Civil Engineering in which he was prominent, and he was also a member of the D.K.E. fraternity. After graduation he did not follow professional work in Civil Engineering, but soon became a member of the firm of the Rodda Piano Company and three years later became associated with the export firm of J. S. Barron and Company, remaining with that firm for about nine years. In 1907 he entered the employ of L. Sonneborn's Sons, Ltd., then dealers in lubricating oils but later becoming petroleum refiners and manufacturing chemists, and with this organization Copeland spent the last 50 years of his busy life. He became a specialist in the development of pharmaceutical and cosmetic formulas and was credited with the introduction of pure mineral oil as a cosmetic ingredient thereby bringing about the prevention of rancidity. He became sales manager of a pioneer division of Sonneborn devoted to the refining and marketing of petroleum products for the pharmaceutical and cosmetic industries, and eventually director of the special accounts of the Company.

Those of us who attended the 60th anniversary Reunion of the Class two years ago will recall Copeland with special appreciation for his warm friendliness, his sense of humor, and his fine loyalty to the class and to M.I.T. The heartfelt sympathy of the Class has been expressed to his widow who kindly informed the secretary of her husband's demise in which we share her sorrow and loss. In her note she wrote warmly of her husband's great pleasure when he attended our latest and possibly our last five-year Reunion. One by one we are passing down the last long trail. — S. C. PRESCOTT, *Secretary*, 16-317, M.I.T.

• 1895 •

The majority of the living members of the Class of 1895 are indisposed toward any correspondence especially with their Secretary, so it is difficult to collect items of interest as to their welfare. We recently received word from our Alumni Office, of an announcement in the New York *Times* of the passing of our classmate Henry M. Crane, on January 21, 1956.

Henry Middlebrook Crane '95, was a student at Technology covering a period of five years, during which he acquired an S.B. Course II, and an S.B. Course VI. During the greater part of his life he was a consulting engineer in design and construction of motor boat and aeroplane engines.

He started work in the engineering laboratories of the American Telephone and Telegraph Company — 1896-98; with the Western Electric Company — switchboard and development work 1898-1906. He began automobile design and construction in 1906 under the firm name of Crane and Whitman, and after continued motor car work, reorganized his concern as the Crane Motor Car Company of which he was president. Again in 1914 this company was consolidated with the Simplex Automobile Company of which he became vice-president and chief engineer.

In the meantime he gave attention to motor boat engine design, and among other productions in 1907, built a 200 h.p. 8-cylinder motor boat engine, successfully used in defense of the Harmsworth cup. In 1915 he was vice-president and chief engineer after the consolidation of Wright and Simplex Companies into the Wright-Martin Aircraft Corporation.

In 1917 he went to France and "picked-out" the aviation motor best suited to production in the U. S. He selected the Hispano-Suiza.

During 1917-18, he was chairman of a three-engineer committee appointed by the Aircraft Board to investigate the Liberty Motor production. He became vice-president and chief engineer of the Wright Aeronautical Corporation, and resigned this position in 1920 to devote his entire time to consulting work. Crane was a dynamic person in the design and construction of aeroplane motors. His genius in part contributed greatly to the advancement and effectiveness of building successful motors for aviation. In recent years he lived at The Waldorf-Astoria, Park Ave. at 50th St., Apt. 1568.

Dorville Libby, Jr., Course VI, moved from Berkeley, Cal. to 281-41st Street, Oakland 11, Calif. A recent letter from Judson Dickerman, in Charlottesville, Va., tells us he is waiting for warm weather to plant his garden. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass.

• 1896 •

The following letter from James Driscoll is stark evidence of the dwindling attendance at the Mid-Winter Alumni dinner. Both of your secretaries have had pneumonia and are convalescing satisfactorily, and should be well on the home stretch when these notes are delivered. We cannot claim over work on Class affairs as a cause. We commend Joe Harrington for his generous supply of his extended studies in and around the coal bin, and trust that some of the boys will emulate him and respond to the distress call for Class news. With the coming of spring don't take up heavy duty hobbies too energetically. What has happened to our distinguished president should have sufficient cause for reflection by us of what might have been. Here is a letter from James Driscoll. "Last night I found no other '96 member at the mid-winter M.I.T. dinner. Directly back of me was the table for the officers and members of the panel. Don Severance told me he was secretary and that he had heard from you that you couldn't come and that Fred Damon had been in a hospital since Thanksgiving but was now back in his hotel. I am sorry to hear such news and though I was disappointed not to see you, your disappointment not to be there was keener. Hope the warm weather will allow you and Fred to arrange a meeting of the Class to celebrate the 60th." My reply was as follows: "It was good to hear from you and we accept the news with a growing consciousness of the passing of time with its inevitable toll. Glad you were able to attend. Fred and I have taken quite a beating this year. Each of us has had pneumonia. I have yet to go out, but go over the stairs a few times a day, and Fred has just returned from the Wyman House, after a stay of a number of weeks, to the Commander Hotel.

"With the coming of spring, I think we will both be on the ball again. We have been mulling over plans for our 60th with no definite conclusions. Henry Hedge has offered the Country Club in case we wish to have a Class dinner, but a less ambitious program would find us

celebrating at the Alumni Luncheon. We hope to receive other suggestions from those who plan to be present on June 10."

We received a letter from Joe Harrington which reads as follows: "I have retired from active business life on January 1, 1955 after 54 years. Now I stay at home, taking it easy. I have a large garden and a 16-room house, so there is plenty for me to do." Joe has led a rich and interesting life. He is the designer of many coal devices, has served on several governmental committees, and is an author and lecturer. He has been awarded honorary membership in the National Association of Power Engineers, and was the recipient of the "Modern Pioneer" award from the National Association of Manufacturers in "recognition of distinguished achievement in the field of science and invention which has advanced the American standard of living" made by Karl Compton, Chairman of the Committee on Modern Pioneer Awards, in 1940. When he retired, Joe was the Advisory and Research Engineer for Southern Coal Company, Inc., and affiliated coal mining companies. He is well-known as one of the leaders in the middle West in the economical use of fuel in the power plant.

We have received a change of address for Harold C. Stevens to Lake Ave., St. James, N. Y. — JOHN A. ROCKWELL, *Secretary*, 24 Garden St., Cambridge 38, Mass. FREDERICK W. DAMON, *Assistant Secretary*, Hotel Commander, Cambridge 38, Mass.

• 1897 •

Hon. Proctor L. Dougherty is a member of the Class who has been of great help to your Secretary pro-tem in getting data for our Class notes. The following under date of December 21, 1955, was written from his Washington office in the National Press Building: "Now, Jack, your sharp stick of December 14 is boomeranging on me as I have in the past used it effectively on others to get them into the Class News. Fair enough. However what I understand is you want a biography. Well, I was born in the 1870's, the oldest of eight and survived the cold New England weather to go to Cambridge (Mass.) public schools; the Cambridge Manual School, then called the CMTS, but now known as the Rindge School in memory of its founder, Frederick H. Rindge of California; and with the help of the Cambridge High got into the Freshman Class of '97 at M.I.T.

"After graduation I became engineer-salesman for the Otis Elevator Company and considered myself in welfare work since it had its ups and downs. In 1926 President Coolidge, looking for a good Massachusetts man spotted me for Commissioner of the District of Columbia. He had some dissatisfaction with the previous Board and wanted some changes. So I received a recess appointment in August of that year and was confirmed by the U. S. Senate the following February. It was an interesting three and one half years as I served with another civilian member and also an Engineer-Commissioner who is appointed by the President from the U. S. Corps of Engineers. This appointment brought me and Mrs. Dougherty many interesting invitations from the White House, Cabinet members and Embassies. I recall one morning having breakfast with President Coolidge and found myself separated from the President by his beautiful white collie. He was used to being fed by the President by hand out from the table.

"When my term expired, I did not seek reappointment and opened an office in the National Press Building where I assisted visiting businessmen in making proper contact with Government purchasing officers. It has proved a most interesting experience and left me with an Honorable in front of my name. My contact with the local M.I.T. men has resulted in many new friendships. At one time I was president of the Washington Society of the M.I.T. We have frequent meetings with a good attendance.

"I see Hunnewell and Loomis frequently. Both seem to be well. But I never see Herbert the Hermit (Wyman) who still has his cigar box in the store at 709 G Street, N.W. for mail matter where he goes every week. And so the old year ends with good health and spirits and looking forward to new experiences."

Another one of our helpful and faithful Classmates writes from Hastings-on-Hudson as follows: "Charlie Breed set an example in the Class notes last month that many others of the Class should follow. I can't believe that Henry Ballou won't produce from his agile mind some reminiscences of his experiences over a period of 60 years. It was he that produced an 80-foot observation tower almost in his front yard so that he could observe his office on the 26th floor of the Industrial Trust Building in Providence which is 7 miles away without leaving home. Jere Daniell probably knows more about submarines than anyone outside of the Navy. His acquaintance with the design and production of such for several years in Spain gradually led up to the building of the Nautilus. Those of us who have seen Jere's house in Franklin, New Hampshire, with its strong Spanish flavor located on the shore of a beautiful small lake, are quite certain that Jere has a one-man submarine in that lake. He will admit it is a bit small for speed of over 30 knots and depth of over 100 feet, but it suits him for relaxation almost as much as fishing.

"Charlie Hammond in his sixty years in various services has had most interesting adventures. After being at M.I.T. with him for two years (he came to M.I.T. from Tufts in his junior year) I encountered him first in the fall of '97 in New York. This was a most fortuitous meeting as we were both enroute to Central America to take part in one of the many surveys of a possible canal route across Nicaragua. Our lack of acquaintance at M.I.T. was made up by close association in the tropics. My most vivid picture of him is sitting at lunch, mostly canned salmon and potted ham, under a thatched roof of monkey palm from which various ants and spiders descended, and arguing with him as to the maximum speed of a sloth. This was brought about by the fact that a sloth was tied to the leg of an adjoining table. During the preceding night the animal had broken its fastening and had run (?) away. It was found 10 feet from its point of attachment, and the argument was, had it used full or only part speed in the few hours it was free. Charlie can discourse on many more interesting phases concerning life in the tropics. He also knows the civilian side of many celebrated men and could enlighten us on their foibles.

"Has Tom Weymouth given you any note? If it were not for Tom and his gas transmission formula, many of us would not be enjoying the warmth arising from Texas and Oklahoma gas, that we need in this cold weather. Tom says he did not get to pressure high enough for present uses, as his formula stops at about 400 pounds and double that pressure is being used at present. As a versatile individual Tom is a wonder. You should see his paintings, both landscapes and portraits. He is a grand example of what to do after sixty-five. He is sorry for the poor fishes that can think of nothing more to do after sixty-five than to play golf, play pinochle, fish, and sit in the Florida sunshine. Tom and his work are an inspiration. One could ramble on about a dozen or so more of the Class past and present, but "sufficient unto the day, etc."

A letter from Gus Lamb dated January 6th encloses a clipping rom the Holyoke *Transcript* of December 17, showing the various officials of the American Writing Paper Company, including our Classmate, which was taken at a luncheon at the Roger Smith Hotel given by the Company in Gus Lamb's honor on the occasion of his 80th birthday. I wish we could reproduce the photograph in these Class notes as it includes an excellent likeness of Gus who is still active in the Company's Sales Department. He has been with American Writing Paper Company since October, 1897, in other words, his entire business career. From 1901 to 1919 he was with the New York office and since 1922 in the Sales Department at Holyoke, Mass. Essentially all of the top officials of the Company were present at the luncheon. In addition, he stated that the office force covered his desk with cards and presents making the day one long to be remembered. As I looked at the photograph of Gus it reminded me vividly of the well-known '97 male quartet of which Gus was a prominent member, and I could almost hear his tenor voice.

The following letter from Charles H. Sweetser, 525 Lowell Avenue, Palo Alto, Calif., dated December 17, 1955, has been received through the courtesy of a member of our class who for some reason, known only to himself, desires to remain anonymous: "Your letter of November 11 received and I enjoyed it very much. You asked for it, so here goes. No, I have not seen you at any Class Reunion. I, too, am quite slack in Class duties. Your comments about Machias, or was it Machias Port, bring back pleasant memories.

"I came to California in '97 and took my degree at Stanford University in '98. Was in Cuba at the turn of the century, as Engineer on sanitary work in Havana and Columbia Barracks near Havana. There I met General Gorgas of Panama fame. He was then a major. Then I spent about three years in Hawaii on sugar plantation railroad and irrigation work. For the next three years was Territorial Highway engineer on the Island of Kauai, and in 1907 returned to the coast and

settled in the state of Washington. There I was employed by the State as Supervising Engineer and then Chief Engineer of the newly established State Highway Department. In 1913 was appointed Senior Highway Engineer, United States Bureau of Public Roads, and in 1916 was made District Engineer in charge of all Federal Aid, U. S. Forest and National Park Highway work in California, Nevada and Arizona. Except for 18 months, when I was a Captain of Engineers in World War I, serving 13 months in France, I held this position until I was retired in 1943, having reached the age of seventy.

"But, enough of this personal history which is probably not of much interest. I might add that in January, 1952, my wife and I quietly celebrated our Golden Wedding Anniversary. I have been back home to Massachusetts three or four times for short visits but have never attended a Class Reunion. With lawn bowling, auto trips and hiking for recreation, and proximity to Stanford for lectures, concerts and sports, I am enjoying my retirement for an oldster going on 83. Perhaps we may meet at some future Class meeting, here's hoping. Remember me to any Classmates you may come across."

We regret to announce the death on January 5, 1956, of Frank I. Howe. He had been living in Kennebunkport, Maine, and his postal address was Box 44. — JOHN P. ILSLEY, *Secretary Pro-tem*, 26 Columbine Rd., Milton 87, Mass.

• 1898 •

Thanks to the cooperation of the two presidents and of a goodly representation from the Class we are able to write up Class Notes for April and May before taking off for a trip to the Middle East and Europe.

Another stalwart of the Class, greatly beloved, Robert Starr Allyn, has passed on. Lester has kindly sent us the following life history and tribute.

"We are sorry to have to record the passing of one of the leaders of our Class. Bob Allyn always took an active part in all Class activities. His career was distinguished as a civil leader, a military officer and as a professional expert. The New York *Times* printed this obituary on page 2: 'Robert Allyn, 80, A Patent Lawyer; Former La Guardia Aide Who Was Author and Leader in Veterans' Affairs Dies: Robert Starr Allyn, noted patent lawyer who was prominent as a public official here during the La Guardia and Hylan Administrations, died yesterday in Lakeville, Conn. He was 80 years old. Mr. Allyn died at the home of a daughter, Mrs. James W. Harvey, with whom he had resided in recent years. A long-time Republican, Mr. Allyn was an alderman during Mayor John Hylan's Administration in the early 1920's. Under Mayor Fiorello H. La Guardia, he served successively – between 1934 and 1938 – as Deputy Commissioner of Sanitation, Deputy Commissioner of Docks and as a temporary Magistrate.

After World War I, Mr. Allyn became one of the nation's leading crusaders for military preparedness. He had served in the war as a battalion commander in France with the Fifty-seventh Coast Artillery. In 1923, he organized the 607th Coast Artillery Reserve, which he commanded until 1936, when he retired. Mr. Allyn was graduated from Massachusetts Institute of Technology in 1898, and received a law degree from Columbia University (now George Washington University) in 1900. Two books Mr. Allyn had written on the subject of patents were not on his specialty, electrical patents, but on plant and fruit patents. He was frequently consulted and retained in many major patent disputes. In 1922 Mr. Allyn was Judge Advocate General of the Veterans of Foreign Wars. The next year, he held the same post with the Reserve Officers Association of the United States. He was a former vice-president of the latter association. In 1924, he was president of the New York State unit of the association. A strong advocate of military training in colleges, Mr. Allyn summed up his views in a talk before the Lions Club here in 1928. After denouncing an extract from a book by Bertrand Russell, in which the English author described nationalism as "a superstition," Mr. Allyn said: "The pacifist attitude attaches too much importance to human life, as such, and tries to disregard that attribute of human nature which had always made men and women perfectly willing to die for their ideals of justice and liberty." The Veterans of Foreign Wars credited Mr. Allyn as originator of the "Buddy Poppy," a copyrighted device used in the organization's fund drives. In the early '20's he was an unsuccessful Republican candidate for Congress. Bob's wife, Laura, died two years ago. She will be remembered by all his Classmates as she always attended our Class affairs. Bob is survived by two sons and two daughters."

Two other Classmates have recently passed on: Harvey L. Currier of Garden City, N. Y., on October 11, 1955; and William W. Stevens of Los Angeles, Calif., on January 8, 1956.

At the present writing, February 7, the "goodly representation from the Class" have sent in 27 cards and two letters in response to the plea of Class Letter #16. Keep them coming, please, to tell Classmates about yourself and family. Statistically minded Dan has added to each card the course number, so that you may have the full story.

Roger Babson, Course I, 250 Cliff Road, Wellesley Hills, Mass., writes, "Dear Dan: – Thank you very much for your Class Letter #16. We all owe you much for your time and effort. Please put me down as in active business. I don't want to 'Rusticate.'"

Classmates and friends who attended the 55th Reunion and enjoyed the hospitality of Mr. and Mrs. Babson at Babson Park will remember the remarkable collection of Newtonia; and also that Roger was interested in the harnessing of gravity. The idea, like the small seed of the Scriptures, has grown into a stout tree. Consult the New York *Herald Tribune*, issues of Nov. 20-22, 1955, for a series of three articles on new pure and applied research into the mysteries of gravity and efforts to devise ways to counteract it; about twelve columns of print, copiously illustrated. En passant, we wish to thank the Alumni Association and James A. Cushman, Assistant Secretary of '03, for calling our attention to these articles. While we were debating how to compress three such articles into a brief Class News item and do justice to the subject, along came a Lester D. Gardner Circular letter, which solved the problem. It explains the genesis of The Gravity Research Foundation of New Boston, N. H., and the newest developments, as follows: –

"The Gravity Research Foundation of New Boston, N. H., has sent me a very interesting report of the proceedings of their annual 'Gravity Day.' I visited the Foundation in 1949 shortly after it was organized by my Classmate, Roger W. Babson. So much has happened since 1949, I thought some of you would be interested in an up-to-date report on gravity. While a student at M.I.T., Mr. Babson wrote a thesis on Sir Isaac Newton. He was impressed that although Newton's work in connection with mechanics, optics, chemistry, and astronomy had grown into important industries with hundreds of different textbooks thereon, yet almost no progress has been made in connection with gravity. The study and 'harnessing' of gravity is about where it was in Newton's time. As a result of the above, Mr. and Mrs. Babson made many trips to Cambridge, England, and have the third largest collection of Newton's books and manuscripts in the world. In fact, they brought his original library room to Babson Park, Mass., where it is installed in the library of the Babson Institute. You are welcome to see it there, as I have. With your own hands you can open and close the same shutters and handle the same 'doorknobs' which Newton touched many times a day. It was in 1948 that Mr. and Mrs. Babson formed and endowed the Gravity Research Foundation as an eleemosynary organization. The rural location at New Boston, N. H., was carefully selected in order to be safe in case of World War III. In 1949 the Foundation considered opening a laboratory, carrying on experiments itself. However, after much thought and investigation, this idea was given up. The Trustees decided that the objective of the Foundation should be to arouse interest and encourage those who are better able to carry on experiments in Gravity Research. Some of these people are in colleges and research laboratories; others are independent scientists or inventors. The main purposes of the Foundation are: – 1. To stimulate interest in gravity thru awards ranging from $100 to $1,000 for essays on some reasonable means of controlling or utilizing the force of gravity. You can read any of the several hundred essays at New Boston or borrow them by mail. The trustees are considering a change in the subject of the next contest in order to arouse greater public interest. 2. To serve as a free clearing house for everyone seriously interested in the application of gravity to practical uses. The files are carefully indexed into some 50 classifications of special interest. 3. To have the best library and files on gravity in the country, open freely to anyone. Dr. Stanley Deser and Dr. Richard Arnowitt, associates of Dr. Albert Einstein at the Institute for Advanced Study, Princeton, N. J., won the $1,000 Award in 1954 for their essay which attempted to find

an expression for gravitation by combining relativity and quantum mechanics. Other attempts have been made. Of course, nobody has done it yet, but that is what they are working toward. The Gravity Research Foundation contributed toward a re-awakening of interest on the part of a brilliant and successful young industrialist, Agnew H. Bahnson of Winston-Salem, N. C. Together with others, he is in the process of organizing a 'Little Institute For Advanced Study' to be called the Institute of Field Physics. Their quest is to provide a knowledge of gravity that will make practical development possible. Head of this important new project will be Dr. Bryce S. DeWitt of the Radiation Laboratory of the University of California in Berkeley. Dr. DeWitt won the $1,000 Award of the Gravity Research Foundation for his essay in 1953 entitled 'New Directions For Research In The Theory Of Gravitation.' Dr. DeWitt will keep in close touch with Dr. John Wheeler of Princeton.

"I know that the Gravity Research Foundation has been greatly disturbed over airplane accidents. Until recently, they were discouraged because the airplane manufacturers would not cooperate with them and do something about 'Old Man Gravity.' George L. Trimble, Vice-president of the Glenn L. Martin Company of Baltimore, Md., was the first one to act. Thru his efforts Martin has organized a new laboratory, the Research Institute For Advanced Science (RIAS). Director Welcome W. Bender outlined their plans at the Gravity Day Conference at New Boston. He said they will investigate gravity and try to fill in the existing gaps in man's knowledge of the subject. With a better understanding of the nature and cause of gravity they feel something may be done about it. They will welcome any suggestions for experiments in the field of gravitational phenomena which will throw more light on the subject or carry to more significant figures some of the measurements already made. I have heard that Hiller, Sikorsky, Convair, and Lear have also indicated an interest in Gravity Research, but I know of no definite plans announced as yet, except by Convair. I could write you more about the studies of individuals like Jordan, Heim, Llavaty, Ivanenko, the group at Syracuse, and many others with whom the Foundation is working, but I am sure the highlights I have given you are enough for now. Write the Gravity Research Foundation at New Boston, N. H., for further details. They will gladly send you their printed reports without charge and put your name on their mailing list. My distinguished Classmate, Roger W. Babson, has done many outstanding things during his lifetime, but his Gravity Research Foundation certainly ranks among the most important. The 'harnessing' of gravity would bring benefits to mankind which are almost beyond the imagination. Lester D. Gardner."

Continuing the interesting items sent in response to Class Letter No. 16: Arthur A. Blanchard, Course V, 25 Evans Road, Brookline 46, Mass. "Retired in 1943. Stayed on at Tech doing research both on my own private problems and on war problems for the government till 1946. A paralytic shock has confined me to a wheel chair since then. Have spent winters in Florida since then but this winter am staying in Brookline."

Henry C. Belcher, Course II, 9 School St., Proctor, Vermont. "Retired. Married. 2 children. Harold H. – M.I.T. 1925. Elizabeth, University of Vermont, 1932. Four grandchildren. One great grandchild."

George H. Booth, 243 Roswell Ave., Long Branch 3, Calif. "Retired."

Leroy H. Byam, Course I, 51 Edgecliff Terrace, Yonkers 5, N. Y. "Still retired. Activities: Taking care of my 45 foot cabin cruiser, 'Victory III.' Cutting out (not paper dolls) jigsaw puzzles for amusement and for sale by Abercrombie and Fitch. These and helping my wife housekeep leave me little time for other activities. My address is the same as it has been for the past 47 years."

Everett F. Currier, Course X, 161 West 16th St., New York 11, N. Y. "Re – 1955 Alumni Register. Retired from active business April 1, 1955."

Alan L. Davis, Course III, 25 Concord St., Waterbury 10, Conn. "My hobbies are: – Sight seeing e.g. Zion Nat'l Park – southern Utah 2-22-55, hiking in White Mountains, Bridge – duplicate – or rubber, articles on bridge published by N. Y. *Herald-Tribune,* wood working in my shop, reading, cooking and eating, chewing the rag, fighting the neo-liberals who are anti-anti-communist, and fighting the spawn of Marxism."

Ray C. Faught, 201 Athol Gate Lane, Baltimore 29, Md. Course VI. "Retired from G. E. since February '44. I am interested in all subjects, such as history, biology, archeology, biography, science, engineering, music, etc. Spend a great deal of time reading. Listen to good music including opera on radio, some programs on T.V. Attend some concerts. Member A.I.E.E. (life), English Club, Baltimore (about 40 yrs.), Book of the Month Club and History Book Club. Live on old 4-acre place, fine old shade trees. Wife has two 125 foot borders of perennials to say nothing of shrubs and trees. I farm a considerable vegetable garden. In good health and especially grateful for perfect eyesight and nearly perfect hearing, so I listen and read as much as I please. Will be 81, come Jan. 22, 1956." (To be continued in May notes.)

Our active president, Dan Edgerly, besides attending the Compton Dinner in New York on January 4, 1955 also attended the M.I.T. Midwest Conference at St. Louis on March 4, 1956. He has been kind enough to send to us the invitation and folder, sent out prior to the meeting, from which we quote in part:–

"Today's Research and Its Impact on Tomorrow. Outstanding Speakers. . . . Vital Topics, George R. Harrison, Dean of the School of Science, M.I.T. The New Frontiers Of Science. John C. Trump, Professor of Electrical Engineering, M.I.T. High Voltage Particles In Medicine And Industry. Edward P. Brooks, Dean of School of Industrial Management, M.I.T. Today's Plans For Tomorrow's Management. Thomas H. Pigford, Associate Professor of Nuclear Engineering, M.I.T. The Nuclear Reactor: New Tool For Research And Industry. Joseph W. Barker, President, American Society of Mechanical Engineers, Topic unannounced. James R. Killian, Jr., President, M.I.T., Topic unannounced. The folder displays pictures of the speakers with a brief resume of their accomplishments and papers."

Concerning Dean Harrison's paper, the folder advised:–"The New Frontiers Of Science. The bringing to light of new information regarding the ultimate structure of matter and its interaction with energy, results in an expanding and leavening effect on all of science, technology, industry and the economy. We are now entering an era in which man's improving control over nuclear energy can be expected to expand not only the frontiers of knowledge, but the whole of social activity. Important as the new power applications of nuclear energy will be, these will probably be of far less consequence than the new vistas opening in science and industry. There is hardly an industrial process that will not eventually be improved as a result of man's new control of the atom. At M.I.T. research is now underway on many of the new frontiers of science. Physicists are now attempting to penetrate the very particles of which the nuclei of atoms are made, using energies of billions of volts. Dean Harrison will discuss specific examples of the new attacks on knowledge, and some of the expected results."

Concerning President Killian, the folder advised:–"Dr. Killian's six years as President of M.I.T. has been marked by an increasing emphasis on balancing the Institute's professional curricula with such courses, activities, and environment as will give the graduate depth as well as breadth. As a first step to implement his faith in the importance of a broadened educational program, the Institute established in 1950, a School of Humanities and Social Studies, which gives formal recognition to M.I.T.'s long-established courses in general education and in social science and develops new sequences in the humanities for the professional program of M.I.T.'s other schools. In 1952 a School of Industrial Management was established, a school dedicated to make these young men of today better equipped to meet the exacting demands of industrial management when they become the industrial executives of tomorrow. Dr. Killian's leadership in education and in matters of national defense and security has been recognized by several honorary degrees, the President's Certificate of Merit, the Freedoms Foundation Award, and the Certificate of Appreciation from the Department of the Army. A short time ago he was named chairman of the Organization Planning Committee of the Ford Atoms for Peace Awards, a new project for financing atomic research to benefit the welfare of mankind."

Dan writes,–"The Midwest Conference just finished. Dean Harrison gave a fine paper and was moderator of the Conference, that is he introduced all the speakers, etc. The papers were on a very high plane, beyond the graduate level and in the realm of School of Advanced Studies. But so cleverly presented (and clearly) that they held the deep interest of the 300 Alumni present. At the evening banquet, the ladies were there, so bring-

ing it to some 500. I got an enormous 'kick' out of it and it raised my opinion of M.I.T. to a high degree. Tech holds two of these seminars per year in different parts of the country. The preceding one at Dallas – the next one at Los Angeles." Ed Little also attended, so that with Dan and our honorary member, Dean George Harrison, '98 was represented at the meeting by three members. Not so bad for the good old Class. Dan advises, enfin, "Perhaps you can note in Class report, that if such a meeting is held near where any of our Classmates live, they should, by all means, attend it." – EDWARD S. CHAPIN, *Secretary*, 2 Gregory Street, Marblehead, Mass. ELLIOT R. BARKER, *Assistant Secretary*, 20 Lombard Road, Arlington 74, Mass.

• 1899 •

Classmates will please note that your Secretary is no longer located in Albany, where he has lived for many years. He is now living in the home of his son at the address given below. Here he will be under the loving care of Leighton (M.I.T. '33) and Leighton's dear wife, Theo, who is like a real daughter to him. He will be kept busy and inspired by his three granddaughters aged nine, eight and two years, and a grandson, six. Information from or about the doings of '99 men will be gratefully received at that address. – BURT R. RICKARDS, *Secretary*, 173 Edgewood Ave., Pleasantville, N. Y. MILES S. RICHMOND, *Assistant Secretary*, Little Compton, R. I.

• 1900 •

We quote from the Boston *Herald* of January 23rd, "An internationally-known marine biologist and oceanographer, Professor Henry B. Bigelow, was honored by students, friends and fellow-scientists yesterday at a reception in Harvard's Museum of Comparative Zoology. Dr. Bigelow, now 75, concentrated his early efforts on the lower forms of ocean life such as corals and jellyfish, but most of his work has been concerned with fishes. His book on fishes of Atlantic coastal waters is a standard reference work. He was the founder and was for many years president and director of the Woods Hole Oceanographic Institute. Professor Bigelow was awarded the Agssiz Medal of the National Academy of Sciences in 1931, the Bowie Medal of the American Geographical Union in 1944, and the Johannes Schmidt Medal of Denmark in 1947. He has received honorary degrees from Harvard, Yale and the University of Ohio." We are very happy that Dr. Bigelow's brief connection with M.I.T. was with the class of 1900.

We regret to report the death of Harry B. Chalmers last December. He was one of our best correspondents and we shall miss his letters. We enjoyed receiving a Christmas card from Charles Hughes of Staten Island.

Many of you have doubtless enjoyed travelling on the new highway which is part of Route 3 in New Hampshire from the Massachusetts line to Manchester and avoids the long, congested route through the city of Nashua. In doing so you must have noticed what others will be interested in learning, that this new superhighway has been named The Frederic E. Everett Highway in honor of our Classmate who was for many years State Highway Commissioner of New Hampshire. – ELBERT G. ALLEN, *Secretary*, 11 Richfield Road, West Newton 65, Mass.

• 1902 •

As reported in the March Notes Leslie W. Millar died last April but it was not known to the Secretary or Alumni Office until December. Through information recently received from Mrs. Millar it is learned that he died April 4, 1955 following a week's illness with coronary thrombosis. He had made a successful recovery from a previous attack in 1953, although in the previous year at the time of our Reunion he had been unable to attend and round out his term.

Although Les was a naval architect by training he was engaged in that line comparatively few years. His major activities were as sales representative. He started his career after a few minor jobs as assistant to the constructing engineer of the Station Engineering Department of the Boston Edison Company. After four years he decided to enter sales work and after shuttling between Chicago and New York became a railroad equipment sales representative with his home base in Chicago. This work was interrupted by World War I and he received an appointment as Assistant Inspector of Naval Construction, first in Boston then Quincy. At the end of the war he returned to sales work with the Steel and Tube Company of America in Detroit and later the C. A. Dunham Company of Chicago as sales division manager over a large territory. With the coming of the depression in 1932 he returned to New York and represented four lines in that area. In 1941 he became connected with the U. S. Maritime Commission and was assigned duty at Philadelphia; two years later to New York to the War Shipping Board as Repair Cost Appraiser; a year later to the Boston Office where he remained until 1947. He again took up sales in New York and represented manufacturers of several lines of railroad equipment until his retirement in 1950 when he moved to Birmingham, Mich.

Millar was much interested in community affairs and took an active part. In Chicago he served as president of the Technology Club and he had held the same position with the alumni association of his fraternity, Sigma Alpha Epsilon, in both Chicago and Boston.

Cates continues to receive professional honors. By the time this is read he will have been elected on February 22, along with Secretary of the Treasury Humphrey, an honorary member of the American Institute of Mining and Metallurgical Engineers, an honor seldom conferred. Cates' election was, to quote the citation, "for his outstanding development and administration of the low grade copper enterprises in Utah, at the Utah Copper Co. and in Arizona at the Ray Consolidated Copper Corporation and the Phelps Dodge Corporation. His eminence as a leader in these fields deeply warrants this recognition by the institute he has served so well as president, and, for many years, director." – BURTON G. PHILBRICK, *Secretary*, 18 Ocean Avenue, Salem, Mass.

• 1903 •

We are sorry to have to record the death of Curtis R. Gray, III, in Holland, Mich., on July 16, 1955. He was born in Boston, and came to us from Mechanics High. While an undergraduate, he played on the Class football teams of 1899 and 1900, and on the baseball team of 1900. For many years he had lived in Michigan, and for several years to the time of his death, he was secretary of the DePree Company, in Holland, Mich. We wish we knew what he had done between 1903 and 1953. He and Mrs. Gray attended our 50th Reunion, and we all enjoyed meeting them after so many years. A brief note from Morse tells of his attending a conference on Water Resources Policy held under the auspices of the United States Chamber of Commerce in St. Louis, Missouri the last week in January. We need biographies of all of our Class. If we had had something of this nature about Gray, we could have made the notes this month more interesting. If you are modest about your life, tell us about someone else's. We urgently need some news, if you want to see this column with something in it about the Class. Send it to Cushman, who is responsible for Class Notes. – FREDERIC A. EUSTIS, *Secretary*, 131 State Street, Boston, Mass. JAMES A. CUSHMAN, *Assistant Secretary*, Box 103 South Wellfleet, Mass.

• 1904 •

As these notes are being written on February 9, they may well be a valentine to you, my Classmates.

Today I made a telephone call to Dave Sutton and was pleased to learn that his recovery from his serious illness of last summer mentioned in previous notes, is still progressing and that he is able to to business more often and sometimes to bring work home with him to do there. In last month's notes I mentioned very briefly the death of Charles W. Elmer and since then I have received a note from his daughter, Mrs. Everett L. Upham, Jr. "My father attended schools in Baltimore before entering M.I.T. where he joined the Sigma Chi Fraternity. After graduation, he worked for the Elmer Yeast and Vinegar Company in Baltimore. He married Mae Mason in 1906. In 1907 he came to Boston and went to work for the Simplex Wire and Cable Company. He lived in Cambridge for two years and then moved to Waban where he resided for 46 years." Mrs. Upham enclosed a clipping from *The Simplex Pennant* which said in part "Under the guidance of the late Everett Morss he established the estimating department. He directed it for 35 years. In 1942 he transferred to the accounting department and was employed there until he retired.

Received a letter from Fred Goldthwait '05 enclosing a clipping from the Melrose *Free Press* on Chick Emerson. "Charles J. Emerson was born on April 1, 1882, in Pawtucket, R. I. He attended Pawtucket public schools, and graduated from M.I.T. in 1904. He was a member of Delta Kappa Epsilon fraternity and was its chapter president at M.I.T. in his senior year. He was an instructor of thermody-

namics at M.I.T. under Professor Norton, and served as dean of the Aviation Ground School at M.I.T. during World War I.

"In 1908 Mr. Emerson founded the Emerson Apparatus Company, manufacturers of highly specialized technical apparatus. A former president of the National Metal Trades Association of Massachusetts, Mr. Emerson was an incorporator of the Warren Institute of Savings and a member of the Winchester Country Club. He leaves his wife, a son, a daughter, a grandson, and two brothers."

The following letter from Harry Needham gives us some good information about Roy Mailey. "On graduating from M.I.T., Roy became an assistant to Dr. Noyes and spent a number of years in research on fused quartz. Then he joined the Cooper Hewitt Company and became their vice-president in charge of manufacturing. He received an honorary Ph.D. from Stevens. When General Electric bought Cooper Hewitt he continued for a number of years in charge of manufacturing. When the company was finally made into a unit of G.E. he went to Nela Park, Cleveland where he was in charge of one of the research departments of the developmental laboratory. He finally had a stroke and retired. He left a wife, Bertha, son, Buddy, and daughter, Jean.

"You no doubt remember H. K. Richardson. After graduation, H. K. and his wife went as missionaries to the interior of China. After a couple of years they returned and he joined the lamp department of Westinghouse. At the time of his death he was still active as a consulting engineer for a Norwich, Conn. company that manufactured thermos bottles."

A letter from E. F. Rockwood indicates that he and Mrs. Rockwood enjoyed a winter vacation in Florida. "Mrs. Rockwood and I left Boston on Sunday, January 8 by train and arrived here the following Tuesday. We hope to stay until about March 1. When we get back I expect to go back to work again.

"Cold down here until the last couple of days and then it turned warm and we had 70 degree weather. I have played golf five times; twice 18 holes and three times 12 holes. My old golfing partner, Dick Ashendon, M.I.T.'07 is here and has beaten me every time until today. We were greatly surprised last evening to have two ladies speak to us and say that they knew us. One was Mrs. Arthur Langley."

And while we are on the subject of Florida, Dwight Fellows spent his winter vacation in February at Bonita Springs.

Some time ago I reported that Gus Munston was suffering from hypertension. He has been taking treatments and can get about more than formerly.

I received a note and clipping from Orville B. Denison'11 chronicling the death on January 21 of our Classmate, Oscar J. Thurlow. "Oscar J. Thurlow, internationally known engineer and a Newburyport benefactor, died yesterday in Clearwater, Fla. A graduate of M.I.T. with a doctorate in engineering, Mr. Thurlow was the retired vice-president in charge of engineering development of the Alabama Power Company." Later on I received the following letter from Mrs. Thurlow: "As you may know, Oscar had had several strokes in the last three years but had always recovered enough to get about and to be interested in what was going on. He wanted to go to Florida and see his friends and the Tampa bridge. We went and had been there two weeks and were about to come home when he had another stroke. He was ill only three days, and died in his sleep. — HENRY W. STEVENS, *Secretary,* 1082 Commonwealth Ave., Boston, Mass.

• 1905 •

The most important matter as I sit down to write these notes is that my sixth grandchild (and fifth grandson) was born at about breakfast time this morning. I gave notice to some of you prolific grandfathers that I would be catching up to you, but I promise not to make a similar announcement for about 60 days. The important young man is Kenneth Watson Bickford, who with his parents and little brother will be residing only about ten miles from our home, which, of course, does mean occasional baby sitting.

Gladys Webster writes from Coral Gables that Frank is slowly improving, that he has a short ride in his wheel-chair daily and they are both hoping they will be able to attend another Reunion. C. D. Klahr has sent with his Christmas card and letter a very fine photograph of a very fine family, children and grandchildren, adding that they are looking forward to the 51st Reunion. Sam Seaver, address P.O. Box 91, Markham, Ontario, writes in acknowledging a Christmas card that they hoped up to the last minute last June to attend our 50th. And they are now hoping to make the 51st.

Gib Tower, in accepting the responsibility of tabulating the returns for the 51st Reunion, as well as acting as liaison man between you and the hotel management, writes briefly of his "doings." He is still active at the Bethlehem Steel Corporation in Quincy, Mass., and as a vocation serves as president of the Cohasset Historical Society, also on a committee editing the third volume of the History of Cohasset, with the making of a map of the town as his special assignment.

I was unable to attend the Mid Winter Meeting at Walker Memorial on Feb. 1, due to sickness (a particularly cussed form of the prevalent virus). I have, however, a special report from your president, Hub Kenway, stating that he, Henry Buff, Grove Marcy and Mr. and Mrs. Samuel Shapira represented the Class. I tried unsuccessfully to get half a dozen Classmates to use my ticket, but — well isn't it awful to get to a point where you are voluntarily a shut-in evenings? Among the prominent men appointed by Governor Herter to a committee to investigate the present so-called Point Penalty and Insurance Surcharge Law is our Classmate, Leonard W. Cronkhite, President of the Atomic Instrument Company.

Would that we had more correspondents like Joe Daniels! His Christmas letter arrived late but was very acceptable and I am quoting it as nearly in full as space will allow. "The Muslim salutation — 'peace be unto you' — is an appropriate Christmas greeting to you from Pakistan. It is too bad we cannot write individual letters or send an appropriate card to each of you, but conditions here will not permit, consequently we shall have to send everyone the same message. Some of you will not receive this until long past Christmas because we do not have your addresses with us. At Rome a brief case containing my complete address book was "lost" on the way from the hotel to the air terminal, and nothing was ever recovered. Some of you already have heard from us, and this letter may repeat some of the news; to others everything may be new. I suppose this missive should be called Pakistani Potpourri. We left Seattle one bright Sunday morning, December 5, 1954, spent a week at Washington, D.C., for briefing and indoctrination, jumped to New York and directly from there on a Pan American plane nonstop to Paris in record time, but we were not permitted to leave the airport until our connection arrived several hours later from Rome. There we spent part of three days, during a portion of which we had a chance to see some of the wonders of the old and the new city; but we had to move on to Beirut, Lebanon, where again we managed to see the ruins of old Tyre and to visit Damascus, Syria. On the morning of the nineteenth we reached Karachi, Pakistan, and disembarked at Lahore, our destination, on December 21, four days before Christmas.

"We had travelled half way around the world, and crossed many oceans and lands that we had known only from maps. What happened was that I had been asked by Washington State College to join a group of 16 persons on an educational mission that Pullman was sponsoring under the program of Foreign Operations Administration, now known as I.C.A. My particular job was to start a department of mining engineering at the Punjab College of Engineering and Technology at Moghalpura, a suburb of Lahore, which already had civil, electrical, and mechanical engineering degree courses. Two younger men, one a geologist-miner, the other a geologist, completed my group. Specific assignments were first to build a curriculum, then a library; design and equip laboratories in geology, mineralogy, mining, mineral dressing, and related metallurgy; select a teaching staff of Pakistani 'counterparts' whom we would train to take over our duties when we had completed our two-year contract; make friends and build up good will and understanding for the United States and its programs of foreign aid. You will agree this was an interesting and challenging opportunity. I won't burden you with details; we have completed some parts of the assigned program, but we have had many delays and frustrations, the latter due to difficulties in overcoming the inertia of an eastern country.

"We were given temporary office space, and not until October first, the opening of the current school year, were we assigned permanent quarters. These did not have furniture nor any facilities for carrying on class or laboratory work. No instructors in geology and mining have yet been appointed; textbooks and supplies ordered from the United States are somewhere on the high seas. My two aides have pitched in and started the professional second-year classes in geology and

mining engineering. I expect to help them later, but for the present must carry on the administrative duties and solve the various problems that have arisen.

"Twenty students registered in October 1954, and twenty more on October 1, 1955; the first-year work is common to all engineering courses and is handled by the other departments. We are hopeful that everything will be running smoothly in a few months, but we are not sure! Instruction is given in English and some of the boys have a working knowledge but not a profound understanding of the language. Some of you who have had experience in foreign lands will understand our problems.

"We are now comfortably housed in a 'bungalow,' constructed of brick, faced with cement and plaster, as large as some in Hollywood, and quite ornate. There are three large suites of bedrooms, dressing, and bath room; 'drawing' room; dining room; an office room and adjoining bath; kitchen, pantry, servants quarters, and godowns. Spacious grounds, lawns, flower gardens, and ornamental planting, add a pleasant background. We have limited electric light and power, and a few appliances, such as a refrigerator, fans, and an air conditioner that works sometimes. The I.C.A. provides a watchman (chowkidar) and a gardener (mali); we have a cook, a bearer, and a sweeper on our account. After ten months of trials and tribulations we have found a good cook and an experienced bearer who both have an understandable knowledge of English, making our household problems much simpler. The cook uses a kerosene stove and has facilities for cooking over a chula, a cement firebox that uses wood or charcoal. It is a marvel to me how they manage to do their work.

"This fall we shall use a kerosene fired Coleman space heater and some electric heaters to try to warm the place. The fireplaces are ornamental, not functional — Pakistanis do not heat their houses and use practically no modern conveniences. We brought basic food supplies with us from home, now we are replenishing these with orders sent to Denmark as well as to reputable, dependable sources in the United States, but we depend mainly on local sources and are living 'off the land.' We can get fish, meat, poultry, fruit and nuts in season, vegetables, bread, butter, milk, and staples such as rice, flour, some sugar, etc. Prices are high, we cannot always get what we want. Some rationing is in force, but we get along. Everything has to be sterilized, but we have managed to avoid contamination. Our cook goes to market or bazaar every day or two and brings his purchases back on his bicycle. Just now oranges and grapefruit are coming into the market, and we are looking forward to many months of excellent supplies of the citrus fruits.

"Lahore, population of over one million, lies on a flat alluvial plain, elevation about 700 feet, nearly 800 miles by rail from Karachi, and is largely drained by the Ravi River, one of the five streams that make up the Punjab of Western Pakistan. It is an interesting city, historically and otherwise, dating back several centuries, even to before the Moghuls of the 16th century; contains some fine streets, gardens, buildings, public edifices, but it is mainly an assembly of small houses very crudely built and many 'shacks.' One can see every type and form of transportation on the streets and highways; cattle, buffaloes and brahmas, sheep, goats, sometimes camels clutter the roads. Intriguing one-man bazaars where a person can buy almost anything, constitute the bulk of the business enterprises, and there are a few good shops — one store to one article, no department stores, no supermarkets. A few movie houses, some having foreign films, but most of them showing Pakistan and Indian productions in Urdu. There is, so far as I know, no night life of conventional type.

"People, people, people! All sorts, a few well dressed, most of them in rags. Women, in purdah, wearing burkas that cover them from crown to foot with only a small screened opening in front of the eyes; it seems every woman is carrying a baby. Many not in burkas, wear a traditional type of costume, trousers, a long shirt-like shalwar over a vest, and a veil or scarf that is thrown around the shoulders and covers the head. Women of the wealthier classes are very well dressed in beautiful fabrics and styles, at functions many of them wear American or European dress.

"The lowest menial tasks are often performed by women; man is the superior animal. The most fascinating sights to me are just people, and I enjoy seeing the procession of individuals along the streets and highways. Poverty and dirt stand out as the universal condition, wealth as the possession of only a very few. I read the other day that the average annual income of all Pakistanis is about 100 rupees, roughly 25 dollars; I do not know if this statement is correct, but it is not far off the actual situation. Many persons earn a rupee a day, others earn nothing regularly. Weather! Lahore is hot from May to October, maximum reported temperatures 110° to 115°. The monsoon season in August–September does not bring much rain to Lahore, but the humidity is high. Then come five months of wonderful weather, better than Southern California or Washington, succeeded by temperatures of just above freezing at night but warmer at noon. We nearly froze to death after our arrival in December.

"Now for the bright side of the picture. Lahore and surrounding areas have many historical spots that go back to the days of the Moghul rulers, buildings, gardens, churches. The country is flat, but irrigated, and almost everything in the way of foods, grains, vegetables, is grown. To be sure, farming is a most primitive occupation, but it is the leading producer of the nation. Some of the roads are narrow, but the scenes and views are very pretty, and the procession of men, animals, and vehicles is a never ending delight. Gasoline costs just a bit over $1.00 for an imperial gallon, and a car is a luxury, but our old 1951 Chevrolet is very much worth-while. We are only 20 miles from the Indian border, but it is some feat to go and to come back, so one stays in Pakistan. I have made two extended trips into mining areas to see the mineral developments. Practically every mine is a primitive operation, nearly 100 percent hand labor, no mechanical equipment, no modern transportation. In addition I have gone to some of the nearby cities to the north of us on one or two day trips. Recently we drove to Khyber Pass in our car with one of my associates and his wife. Now that favorable weather is here, we plan local trips to see some of the rural areas. If plans materialize we shall go to New Delhi and to Agra. The real high light of Gladys' life was a trip to Indian Kashmir where she spent nearly four months in the mountains enjoying the scenery and the cool weather, and where she had the time of her life gathering wild flowers for her collections. From May to the end of August, camping out, riding mountain ponies — almost the same as being in the Olympics or the Cascades. I joined her for three weeks — all the vacation I could spare. She gave me the works, and I had to follow her as best I could in these journeys on the upper deck of the ponies. I did get some interesting photos with the Argus C-3 camera. We shall have some interesting tales to tell and some fine pictures to show when we return. I won't attempt to say anything about resources, economics, or politics, all of which are interesting, for I have written nearly a book instead of a letter. At the moment, we are well and enjoying life. We have over a year to go before we can begin to think of returning home. It has been an interesting adventure, but we shall be glad when our term of service is over." — FRED W. GOLDTHWAIT, *Secretary*, 274 Franklin Street, Boston, Mass. GILBERT S. TOWER, *Assistant Secretary*, 35 No. Main Street, Cohasset, Mass.

• 1906 •

Nine members of the Class attended the Midwinter Meeting of the Alumni Association at Walker Memorial on the evening of February 1. They were Sherman Chase, William Farley, Martin Foley, George Guernsey, Chester Hoefer, Harry Lewenberg, Charles Kasson, and the two Secretaries. This was two more than we had last year or an increase of 28 percent over last year. If we can show the same percentage increase over our 45th Reunion at our 50th two months hence, we should have a successful party. Previous to the meeting the Secretary sent a letter to about thirty men on the Class list in Boston and vicinity which was responsible for the attendance of Farley and Foley. The former was always interested in Class affairs while he was in Boston with the Associated Factories Mutual Fire Insurance Companies, but he retired and moved to Manomet, Mass. in 1946. He is planning to be present at the 50th. Martin Foley was a Course III man who now lives in Nahant, Mass., retiring after many years with a relative in the tailoring business in Boston. Carroll Farwell was unable to attend on account of a recent successful operation on a knee injury injured some years ago. Chester Hoefer advises that he and Mrs. Hoefer have arranged their travel schedule to enable them to be present at the 50th.

Although you will read these notes about two months before our 50th Reunion, they are being written early in February before the final registration let-

ter has been issued, so we are not in a position to present any more statistics on attendance, etc. You may be assured that the plans are going ahead to make our celebration the best ever.

We hope by this time you have made your plans to attend for your sake as I know you will always be glad you came, whatever the cost. Also do not forget that this is our big year in the Alumni Fund and that Sherman Chase needs the support of all of us for the Fifty-year Gift.

The Secretary is happy to state that he has received no death notice to include in this issue, which fact I know is just as pleasing to the readers as to the writers. Let's hope we all stay in good health. See you in two months. – JAMES W. KIDDER, *Secretary,* 215 Crosby Street, Arlington 74, Mass. EDWARD B. ROWE, *Assistant Secretary,* 11 Cushing Road, Wellesley Hills 82, Mass.

• 1907 •

During the past winter months I had quite frequent and extensive correspondence with the men who constitute our executive and assisting committees in connection with our Class 50-Year Gift Fund for M.I.T., namely: Bill Coffin, Allan Cullimore, Fred Dempwolf, Parker Dodge, Chick Eaton, Herbert Eisenhart, John Frank, Hud Hastings, Roy Lindsay, Frank MacGregor, Sam Marx, Bill Otis, Maurice Pease, Bob Rand, Don Robbins, and Merton Sage. Yes, Phil Walker is on the executive committee, but I don't have to write to him, as I see him nearly every day. These men are all in good health, as far as I know, and very much "on their toes" with relation to this Gift Fund, as many of you who have read these notes know by virtue of the fact that you have received letters or personal face-to-face calls from some of them. Through these contacts some interesting relationships have developed among classmates who have not previously known each other. One member of the committee made a call at the home of a classmate who lives less than a mile from the committeeman's home. He wrote me afterwards, "Last evening I had a very pleasant visit with . . . ., and found we have many friends in common. I came home feeling that I had missed a great deal by not meeting him sooner." (Are there any '07 men who live or work near *you* whom you do not know? If so, call on them.) One of our classmates who will contribute to the Fund during 1956 wrote to Fred Dempwolf: "Our class really has a live committee working on the 1907 Gift Fund for M.I.T. Last summer I received a long, interesting general letter from Bryant Nichols about it. Then a nice personal letter from Bryant late in the fall, followed by one from Hud Hastings, another from Don Robbins, and now one from you! That's wonderful team work!"

Don Robbins and Mrs. Robbins have been at Clearwater Beach, Florida, since January 1 and expect to be there until mid-April. I fear that I have no other information regarding classmates except some that has been given to me confidentially.

Our Class contributions to the M.I.T. Alumni Fund have been coming along well, in spite of the fact that by our Class vote taken at our 48-year reunion in June, 1955, they do not constitute a part of our 50-Year Gift Fund, and this *latter* Fund is progressing very well indeed. As of January 31, 1956, 54 men, or 29 percent of the 185 men considered by the Alumni office to be on the '07 active class roll, had contributed to the Alumni Fund $6,240, an average contribution of $115.00. – BRYANT NICHOLS, *Secretary,* 23 Leland Road, Whitinsville, Mass. PHILIP B. WALKER, *Assistant Secretary,* 18 Summit Street, Whitinsville, Mass.

• 1908 •

The second dinner meeting of the 1955–56 season was held at the Faculty Club in Cambridge on January 18, 1956 at 6 p.m. Inclement weather reduced attendance, but the following hardy souls made it – Bunny Ames, Nick Carter, Leslie Ellis, Sam Hatch, Steve Lyon, and Bill Medlicott. As usual we met in the cocktail lounge and over our favorite tonics we were brought up to date on the latest Class gossip. We hopefully waited for latecomers, but finally adjourned to our private dining room for the usual excellent dinner. I was sorry to report a seeming lack of interest by our Classmates in the proposed informal Reunion on the Cape in June, as only a very few have replied they would come. I guess it will be a rather small but select party. More news on this next month.

Leslie B. Ellis was elected Class Treasurer, replacing Lincoln Mayo who died January 8, 1956. Leslie has always been active in Class affairs and will do a fine job. While Gregory Dexter has retired from active engineering, he maintains his interest in the profession, as is shown in his excellent articles in the November, 1955 issue of *Journal of Engineering Education* and the January, 1956 issue of *Mechanical Engineering.*

In our Class Notes of the January issue of The Review mention was made of Steve Lyon judging at a philatelic meeting in Washington, D.C. Have just learned that Gus Weiler was awarded a first prize on his collection "Canal Zone First Issue on Cover." It's too bad Steve and Gus didn't remember each other. We are sorry to report the death of Victor M. Frey at York, Penna. on January 4, 1956 and Benjamin C. Baker at Ivy, Va. on December 3, 1955. The following note from Charles Shapleigh'06 will be of interest: "The enclosed is from the *Daily Progress,* Charlottesville, Va., December 5, 1955. 'Benjamin Charles Baker, 72, a retired architect, died Saturday night at his home. Mr. Baker was born February 28, 1883, in Newport, R.I. He attended Brown University where he was a member of Alpha Delta Phi fraternity, and M.I.T. where he studied architecture. He later studied at Ecole de Beaux Arts in Paris. He came to Ivy about 1914 and started dairy farming. He is survived by his wife, Mrs. Louisa Higginson Baker.' " – H. LESTON CARTER, *Secretary,* 14 Roslyn Road, Waban, Mass.

• 1909 •

Your Secretary is sorry that he was unable to attend the Winter Alumni Meeting on February 1 inasmuch as he was in New York that week attending the usual A.I.E.E. meeting. However, John Davis volunteered to record those present and to obtain any news items that might be used for these notes. There were seven present: Howard Congdon, I, (with his son John); John Davis, II; Austin Henderson, I; Art Shaw, I; Chick Shaw, V; Henry Spencer, II; George Wallis, II.

It has been called to our attention that Tom Desmond, I, is the author of an article, "New York State's Bid to Retirees," appearing in the December, 1955, number of *Journal of Lifetime Living.*

We have received the following from Cummings Dort, I: "Yours of January 16 finally caught up with me and I'll be glad to bring you up to date. Retired June 1948. (U.S. Forest Service has a 62-year deadline. I ran over a few months but my physical was not good enough to put up a big argument so I took the easy way out.) Keene, N.H., was my original home and we moved there from Pennsylvania in 1950, building a smaller but modern and comfortable home. Actually our place at Chesham, N.H., is a summer home on Silver Lake and it is 11 miles over and 800 feet up from Keene. We have leased our Keene house and are spending the winter here in St. Thomas (Virgin Islands) which has a most delightful climate. It is only about nine hours flying time from Keene. You will find us at Silver Lake from early June to early October most any year but we are taking our winters one at a time. However, I believe it is better than a 50–50 chance we'll be back here winters for the next few years. From a work standpoint I served with the U. S. Forest Service from 1916 to 1948 in various assignments and capacities. One of my most interesting projects was a 'Water Power Survey of Southeastern Alaska.' It required two seasons of field work and office work leading to a report, i.e., a Bulletin by the Federal Power Commission which cooperated financially. For the last twenty-four years of my service I was in charge of all the engineering work in the Eastern Region which was of considerable moment in the aggregate, practically running the gamut of civil engineering, i.e., land surveying, design, and construction of roads, bridges, dams and whatever was needed. It was a very interesting, pleasant, and rewarding tour of duty. Personal statistics: my wife is still very much alive and we have one married daughter – no grandchildren yet. If any '09'ers ever come within hailing distance, why come on over and have a talk fest."

In the March number we told of the death of Edmund J. Hooper, III. In response to our letter to her, Mrs. Hooper (Katherine E.) wrote: "I wish to thank you for your kind letter of sympathy in the death of my dear husband. I am enclosing an obituary notice." The notice from the Passaic, N.J. *Herald News* of November 3 reads as follows: "Edward J. Hooper, 68, of 22 Whitford Avenue, Nutley, died yesterday in Presbyterian Hospital, Newark. He had suffered a heart attack Saturday. Born in Stoughton, Mass., Mr. Hooper lived 36 years in Nutley. He was president of E. J. Hooper, Inc., of New York, a rubberized fabrics firm which he founded 12 years ago. He formerly was New York representative for the Archer Rubber Company of Milford,

Mass. Mr. Hooper was graduated from M.I.T. He was a member of the Holy Name Society of St. Mary's R. C. Church, Nutley. He is survived by his wife, Mrs. Katherine Doherty Hooper; a son, Edward, of Nutley; two daughters, Miss Anne E. Hooper, of Northport, L.I., and Mrs. Dorothy M. Petersen, of Leonia; three sisters, Mrs. Mary Coffey, of Canton, Mass.; Mrs. Nellie Scanlon, of Buffalo, N.Y.; and Mrs. Bessie Marron, of Stoughton; a brother, Charles Hooper, of Canton, Mass., and two grandchildren."

Mollie Scharff, XI, has sent us a clipping dated January 23 from the Kansas City *Star*, telling of the death of Harry Havens, XI, from a coronary attack. He was 69 years old. Born at Fort Scott, Kansas, he prepared for the Institute at the Manual Training School, Kansas City. In World War I he served as captain with the Corps of Engineers. In 1920 he founded the Havens Structural Steel Company of which he was president at the time of his death. His brother, Raymond, who died in 1934, was associated with him. The firm has supplied fabricated steel for such buildings as the Midcontinent International Air Terminal, the Hotel President, the Scottish Rite Temple, and the Kaw River Power Plant. In 1918 he married Harriet Thwing, who survives him. He also leaves two sons, Fred R. and Joseph D., and five grandchildren. He was a member of the Second Presbyterian Church and the University Club. We have written to Mrs. Havens conveying the sympathy of the class. — CHESTER L. DAWES, *Secretary*, Pierce Hall, Harvard University, Cambridge 38, Mass. *Assistant Secretaries:* MAURICE R. SCHARFF, 366 Madison Avenue, New York, N.Y.; GEORGE E. WALLIS, Wenham, Mass.

• 1910 •

Last month I received the notice of the death of Stuart Sneddon the day after I had sent my notes to the Review Office and it was not until late in January that I received a letter from Al Hague and a clipping from the New York *Times:* "J. Stuart Sneddon, industrial management consultant and construction engineer, died Wednesday at the Manhattan Eye, Ear and Throat Hospital after a long illness. He was 67 years old. Mr. Sneddon recently had been associated with Snare-Merritt, New York constructors, in connection with a large industrial project in Cuba. During his career he had served as a vice-president of the H. K. Ferguson Company and American Type Founders, Inc., and was a vice-president of 10 subsidiary companies of the International Paper Company. He was a native of Memphis, Tenn., and graduated in 1910 from M.I.T. Among Mr. Sneddon's foreign assignments as a consulting engineer were projects in Guatemala for the World Bank; construction of a new office building for Harris Forbes Company in London, and a project on the Panama Canal for Carey, Baxter and Kennedy."

Al also notes that on January 18 at the New York 1910 luncheon the following attended: Carroll Benton, Fred Dewey, Larry Hemmenway, Al Hague and Gordon Holbrook.

At the Mid-winter Alumni Meeting the following Classmates attended with guests: Abbot Allen, Jack Babcock, Roy Briggs, Sam Cohen, Arthur Curtis and son, George Lunt, Hal Manson, and your Secretary. A very fine meal and program was thoroughly enjoyed by all.

Harry Hale paid me a visit this morning. He had just returned from the West Indies. He had expected to make an extended trip but he found the weather so cold that after four days he took a plane back home. He said he found Marblehead more comfortable than the Islands in the Caribbean.

Just after these notes were forwarded to the Review Office, the following letter was received from Frank Bell: "I regret exceedingly that I did not get to attend your Reunion. We had two very large lettings here, neither of which we got and, as it turned out, I could very well have come on. Both of our companies, Uvalde Construction Company and B and B Equipment Company have had the best year in their history but, it's the same old story: the greater part of it goes to the Internal Revenue Income Tax Department. There is nothing much new going on that would be interesting as far as I am concerned. I am kept busy on Civil Defense work and on the Military Affairs Committee of the Dallas Chamber of Commerce, both of which organizations I am vice-chairman and I might state that I have taken up the new hobby, in the last four or five years, of figure skating on ice. I am a member of the Dallas Figure Skating Club. I find it very interesting and get considerable exercise from it. Our Club has a nice dance wherein we have the arena to ourselves from 6:30 to 7:30 every Sunday evening. We are having rather unusual weather, for this part of the country. Ice, snow, sleet, etc., which has extended as far down as the Rio Grande Valley and has jeopardized our vegetable and fruit crops. I guess that I told you that Frank, my oldest son, and I have a farm and orchard business near Raymondville, which he operates. My other son, Edwin (Class of '48 at M.I.T.), is now General Superintendent of Construction for Uvalde Construction Company. He married about two years ago and now has a little daughter, which makes three grandchildren for me, to date. I expect to be in Washington this Spring at the annual meeting of the Society of American Military Engineers, of which I am a National Director, but I do not believe that I will be able to get as far north as Boston." — HERBERT S. CLEVERDON, *Secretary*, 120 Tremont Street, Boston, Mass.

• 1911 •

Believe it or not we had 11 Eleveners at the '11 table at the February 1 Mid Winter Alumni Dinner at Walker Memorial, along with one son, Dick Richmond, Harvard '54, and two other sons, Alden Loud'49 and "Oz" Stewart'39, sitting with their own Classmates. The big thrill of the evening, of course, was the announcement that "Mr. X" was none other than our splendid benefactor, Alfred P. Sloan, Jr.,'95. Along with a fine steak dinner to start and an excellent program, about which you have already read, this made the evening a big success.

Seated at our Class table were Walter Allen, XIII; Obie Clark, II; Dennie Denison, VI; Cal Eldred, VI; Bill Fortune, I; Fred Harrington, I; Jack Herlihy, II; Roger Loud, VI; Carl Richmond, I, and his son, Dick; Ed Sisson, I, and O. W. Stewart, I. Walter Allen told us he had retired just this past weekend after many years of continuous service with A. C. Lawrence Leather Company, Peabody, Mass. — compulsory retirement at age 65. Fred Harrington seemed to be in much better health, we were glad to find, and of course the big topic of conversation was the forthcoming 45th Reunion, of which Richmond is general chairman.

I was happy to tell the boys at Cambridge that Leroy "Fitz" Fitzherbert, I, says the chances of him and Marjorie attending are excellent; Ed Vose, XI, calls his chances fair and Joe Gershberg, VI, has advised from Brooklyn, New York, that he can now change his indications from "poor" to "fair" and Cleon Johnson, X, wrote from Ridgewood, N.J., correcting my reporting him as "stag," for his wife, Gladys, plans to accompany him. All of which is good and of course we're hoping that the appearance of "Theleveˊner" newspaper in early March will have stimulated further positive replies by the time these notes appear.

During his report on M.I.T.'s financial situation now and for the future, Treasurer Joe Snyder spoke of a new life income endowment which is being popularized. During this discussion he paid tribute to our own Bob Haslam, X, Corporation member, who has already established a substantial fund of this character for the benefit of Technology.

Here is a tribute to a popular classmate, Frank Smith, III, from the Waterbury (Conn.) *Independent*, as it announced the retirement of two members of the technical department of The American Brass Company, with a total of a century of service between them: "Frank G. Smith, metallurgist, started his service with ABC in 1903. He was first employed by the late W. H. Bassett to work in a laboratory which was being organized at the time at one of The American Brass Company's predecessors, Coe Brass Manufacturing Company in Torrington. Throughout his career he was responsible for many pioneering projects in the brass industry, among them the use of photomicography as a method of examining the internal structure of the metal. This has since become a universal practice in the industry.

"He took leave from his duties to attend M.I.T. and following his graduation there in 1911, he returned to the technical department of ABC. He served in World War I as a supervising inspector of ordnance and in the years immediately following the war devoted most of his attention to technical problems connected with the rapidly increasing use of brass pipe and copper tubing for residential plumbing. He became an expert on the effects of various types of water on brass and copper plumbing and prepared many papers on the subject. He also devoted much of his time to engineering problems connected with the production and sale of condenser tubes — a product used in oil refineries, utilities and aboard ships.

"Mr. Smith has served as a member of the subcommittee on nonferrous materials of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code Committee, and on the ordnance committee for the standardization of projectile bands. One of his most recent accomplishments was the development of a method for scientifically determining air flow through very small diameter restrictor tubes used in refrigeration equipment.

"Mr. Smith lives in Waterbury with his wife, Roberta Mansfield Smith. They have two daughters, Mrs. George E. Mannweiler of Moorestown, N.J., and Mrs. Harold W. Butzine of Honolulu, Hawaii, and several grandchildren." A fine tribute to a brilliant career, Frank, and we're all proud of you.

Each January Sara and I are favored by Norman DeForest with a basket of his choice citrus fruit, from his Maitland, Fla., fruit farm and the fruit is just delicious. Contact Norman at P. O. Box 155, Maitland, Florida, if in the market for fresh, juicy citrus fruit.

One of our "eagle-eyes" – Aleck Yereance, I – caught a one-line announcement in an early January issue of *Newsweek* telling of the purchase of Erwin, Wasey & Company by Howard (XI) and son David Williams. We followed it up and found that ownership and management of this leading national advertising agency did change hands and David B. Williams, 35, has moved up from executive vice-president to president and our class vice-president moves from the presidency to chairman of the board. Young Williams told newsmen: "This has been a well-planned transition in ownership and management and our service to clients will continue smoothly. We have recently closed the books on one of the finest years in our history and we have every intention of strengthening our position in the advertising business." He emphasized his confidence in the future by referring to Erwin, Wasey's forthcoming move to new quarters in New York under a 20-year lease involving commitments in excess of $2,000,000 with aggressive plans for expansion of all domestic and international operations now well under way. This is a great tribute to the zealous and persistent efforts our "Zeke" of school days has continued to show in the business world and to the Williamses, pere et fils, our heartiest congratulations and every good wish for an uninterrupted successful future!

Here's another tribute to Carl Ell, XI, President of Northeastern University, Boston, and his capable staff, when we learn that at New Year's applications for admission to N. U. for the 1956–57 year were running 51 percent higher than for the same time a year ago. Admissions Director Gilbert C. Garland reported that by year's end more than 800 applications had been received, the greatest number being for admission to the College of Engineering. The 1955–56 record-breaking enrollment is just in excess of 14,000, including 1,753 freshmen.

Accompanying his dues check and Reunion indication slip, Leroy "Fitz" Fitzherbert, XI, announced that he had retired, as previously reported here, "but I keep busy doing some special work and really enjoying life," adding "only Classmate I have seen lately was Ed Vose, a coursemate of mine, who looks fine."

Suren "Bog" Stevens, IV, also accompanied his dues check with an interesting letter, highlights of which follow: "As already reported, I am associated with C. J. D'Amato, Boston engineers and architects. There are five of us in the association and we are doing State work, having recently started to fireproof the 41 buildings at the Medfield State Infirmary, a hospital for mental cases. That means trips to Medfield to measure the various buildings, as there are no plans available. It is a tedious affair, with wooden stair-towers to be rebuilt of steel. The estimated cost is over a half-million dollars and our work is on a percentage basis.

"By June we will be deep in the work and I'm afraid I'll be unable to get any time off for our 45th Reunion. I am looking forward to the 50th Reunion! I went to the 5th Reunion – you may recall – which was held with some 1907 fellows at the Manchester (N.H.) Country Club. My very best to you, Dennie, and all the gang."

There's still time, Classmates, to plan to attend the June 8–9–10 Reunion (our 45th) at Snow Inn, Harwichport, Mass., so sit right down and "Write to Dennie" if you believe you can "make" it. The more the merrier, as the feller sez. See you then, I hope! – Orville B. Denison, *Secretary*, Chamber of Commerce, Framingham, Mass.; John A. Herlihy, *Assistant Secretary*, 588 Riverside Avenue, Medford 55, Mass.

• 1912 •

John C. Freeman has left Jamaica, N.Y. and is now located at 607 L Street, Lake Worth, Fla.

William R. Glidden has recently been elected president of the American Society of Civil Engineers, a signal honor. As there is no news, I will have to start writing about myself. I am just finishing 41 years with the Lewis-Shepard Company having started in 1915 in the manufacture of industrial trucks.

We now manufacture both hand and electric industrial trucks of all types and capacities and distribute throughout the U.S. We have a manufacturing arrangement in Canada and also in England where we furnish the drawings and specifications to Coventry Climax Engines, Ltd. one of the largest industrial truck manufacturers in Britain.

Last spring, Mrs. Shepard and I enjoyed a cruise through the Mediterranean with stops at Las Palmas, Algiers, Tripoli, Israel, Egypt, Cyprus, Istanbul, Athens, Sicily and Naples. We left the ship at Naples and went up through Italy stopping at Rome, Florence, Milan and through the Simplon Tunnel to Paris. After ten days in London, we returned home on the Ille de France. I found that you gain about one pound a week while away and spend the rest of the time at home trying to work it off. I certainly hope anyone reading this will sit down and drop me a line so that we can continue to have notes with each issue of the Review. – Frederick J. Shepard, Jr. *Secretary*, 31 Chestnut Street, Boston 8, Mass. Lester M. White, *Assistant Secretary*, 1230 N.E. 102nd Street, Miami 38, Fla.

• 1913 •

On to Coonamessett Inn June 8 through June 11 1956, the 1913's 43rd Reunion. Have you sent in your order for accommodations for this Interim Reunion at the New Coonamessett Inn at Falmouth on the Cape? Howie Rand and Esther have already made a request for their suite. The Readys; the Brewsters, the Achards; the Mattsons, Bill and Janet; the Capens; Charlie Thompson; and Ed Cameron have signified their intentions to go early and stay late. Can you afford to miss this gala event? Act today – Act now. First come – First served. Thompson has returned from the sunny confines of California much refreshed and as enthusiastic as ever. Bill Mattson is spending a month in Florida at Fort Lauderdale. What a life yours truly is enjoying in his retirement – Tech affairs and politics make the days pass faster than the old of making a living. Yes, the Mid-Winter Meeting of the M.I.T. Alumni Association lived up to the advance notices. 1913 was represented by Charlotte Sage; Bill Mattson; Charles Thompson; Burt Cushing; Warren Glancy; Frankie Achard; and your Scribe Phil Capen; also Austin Wardwell. The steak dinner, cafeteria-style was consumed by your Classmates with great gusto. The panel of outstanding Tech Faculty, the film on the Sage System of continental air defense, together with the remarks of our ever pleasing President Jim Killian were greatly enjoyed by the assemblage. We learned with great regret that our jovial Treasurer, Joe MacKinnon is retiring come June as Registrar of the Institute; also he has submitted his resignation as our dues collector and watch-dog of the 1913 Treasury. In view of Pop Ready's advice, Charles Thompson called a business meeting of the Thirteens attending the Mid-Winter Meeting. Doc's resignation was accepted and with the assistance of Bill Mattson your Scribe was appointed to serve as Treasurer Pro-tem until our Annual Meeting at Coonamessett in June. So, send in your 1956 Dues, just a five-spot to my attention at 623 Chapman Street, Canton, Mass. Yes, in the interim "Let George Do It." Our record-breaking but youthful Grandfather Bill Brewster has just made the Boston papers again. Bill served on Chris Herter's (the next National President if Ike chooses not to run) Recess Commission On Reorganization of Massachusetts Courts. What an influence Bill enjoys in the Old Bay State. Well, you old retired as well as you young and active Classmates send in your Class dues; your latest accomplishments; but most important news that you will be with the host in June at Falmouth. Another good '13 man has returned to the "Home of the Cod," namely George A. Lichfield, who now may be addressed at Center St., Pembroke, Mass. See you at Coonamessett June 8 in the Swiss Village. – Frederick D. Murdock, *Secretary*, 88 Rumstick Road, Barrington, R.I. George Philip Capen, *Assistant Secretary*, 623 Chapman Street, Canton, Mass.

• 1914 •

The Boston Alumni group held its annual Mid-Winter meeting on February 1. This was an unusually stormy day and,

accordingly, cut into our attendance. Your Secretary was not in the city at that time, so Leicester Hamilton kindly collected some notes for this column from those Classmates present. Leicester is professor of chemistry at the Institute. In addition to his teaching activity, he has been very active in administrative affairs of the Institute. Currently he is engaged in large problems pertaining to relocation of dormitories and additional facilities.

Ted Gazarian, with his cousin as his guest, was one who braved the storm to attend the meeting. Ted's son, who graduated from Harvard two years ago, is a jet pilot and is presently stationed near London, England. His daughter is now living in Colorado Springs. Like many other Classmates, Ted reports several grandchildren. Not long ago, Ted was in the Near East, going as far as Tehran and visiting Turkey and most of the European countries on the way back. His feeling was that the United States looked particularly good to him when he returned.

Jerry Blakeley came with his son, Jerry, Jr. It will be recalled that Jerry has retired from Johns-Manville and is now working as Chief Planning Engineer with the State Division of Building Construction.

Louis Charm attended with his son Stanley and his son's wife as his guests. Stanley is teaching in Chemical Engineering at the Institute and is working for his doctorate. Louis' oldest daughter is married to Dr. A. Shapiro, who is also a member of the Institute's instructing staff and who is currently an exchange professor in Cambridge, England. His youngest daughter is married to an M.I.T. boy. Louis boasts of having five grandchildren.

Vernon Tallman has just been elected vice-president of six utilities. Except for a few years with the Worcester Electric Light Company when first graduated from the Institute, Vernon has been with the Tenney organization, which manages a group of utilities, as a consulting engineer. The companies of which he is now vice-president operate over 2,200 square miles of area in eastern New York state and in New England. In addition to his connection with the utilities, Vernon has always been very active in associations pertaining to the public-utility industry. Tallman's headquarters will remain in Boston.

The executive vice-president of the Alumni Association, H. E. Lobdell, was in Havana recently and met our Classmate, Pablo Beola. Last year Beola was president of the M.I.T. Club of Cuba. Beola has also been active in numerous commercial enterprises, including the presidency of the Gibara and Holguin Railroad.

Carrol C. Davis, who is in charge of research for the Boston Woven Hose and Rubber Company has, unfortunately, been very ill. At this writing he is still confined to the hospital, and we extend to him best wishes for a speedy recovery.

While in New York the first week in February, I had the pleasure of visiting with Herman Affel. He is very actively pushing our 50-year Fund. It will be recalled that all of our contributions to the Alumni Fund for ten years prior to our 50th year will be considered as our 50-Year Fund. Herman, together with our Class president, Charlie Fiske, has succeeded in convincing Arthur Peaslee to head up the special committee for large gifts. Art is working hard at this, and if you get a special letter from him, you will know what it is all about.

While talking with Herman, your Secretary learned that he had been hospitalized last summer. It was occasioned essentially by joint conditions. Herman said that he is now feeling in excellent health.

James R. Reber, a director of the Columbian Rope Company, left January 23 for the Far East on the first leg of a trip that will take him around the world. Reber is making the trip in the interests of Columbian and will visit fiber sources and fiber customers of the company during the tour. His first stop will be Honolulu. From there he will travel to Yokohama and to Manila, and other spots in the Philippines where the Auburn company maintains several fiber baling stations. Reber's stay in the Philippines will be for an indefinite period. He will return to Auburn by way of India, Pakistan, London, and New York.

Are you planning to be in Cambridge to attend Alumni Day on June 11? — H. B. Richmond, *Secretary*, 275 Massachusetts Avenue, Cambridge 39, Mass. H. A. Affel, *Assistant Secretary*, 120 Woodland Avenue, Summit, N. J.

• 1915 •

What a Class! What a gang of wonderful fellows! On January 27, at The Chemist Club in New York, Hank Marion and Larry Landers did it again with a howlingly successful Class Dinner. Thirty-three Classmates enjoyed an hour of cocktails and a delightful dinner, and a show of Ralph Hart's 3–D Reunion pictures and colored slides of the Reunion contributed by many fellows who had taken them at Coonamessett. The exhibition was opened with a few of my own personal slides taken with the Class Gift to me. After dinner a large group went to Ralph Hart's apartment where Ralph, ever the gracious and generous host, entertained us well into the wee hours of the morning. The Boston contingent stayed over at The Chemist Club for a restful weekend and returned on Sunday. The long-distance competition was a close race among Sam Berke, Lakeville, Conn.; Larry Quirk, Middletown, Conn.; Phil Alger, Schenectady, New York; and the winnah! Ben Neal, Lockport, New York. Greater loyalty hath no men! In addition to these–from Philadelphia: Herb Anderson, Larry Bailey, Dick Bailey, Henry Daley, Sol Schneider, Ed Whiting. From metropolitan New York City: Doug Baker, Alton Cook, Jerry Coldwell, Ralph Hart, Howard King, Joe Livermore, Hank Marion, Frank Parsons, Bur Swain, Fred Stetson, Cliff Sifton, Ray Walcott and Charlie Williams. From Boston: Sam Eisenberg, Admiral Bill Brackett, Larry Landers, Frank Murphy, Pete Munn, Wally Pike, Pirate Rooney, Henry Sheils, Fred Waters and Azel Mack. This was an enjoyable evening and its success recommends it well as an Annual New York event. We all signed a note to Chauncey Durkee, and one to Al Sampson, both of whom were laid up in hospitals. Later, a group of us from Boston phoned Al at the Presbyterian Hospital in New York City. Our best wishes for Chauncey and good luck to them both! This letter from Al shows us that he is on the mend, and we hope Chauncey will do as well. From his home, 9 Thorndike Street, Beverly, Mass.: "Just like 'good old Azel' to have all the boys at the Chemist Club party put through a group call, and I can't begin to express in words the wonderful lift it gave me. It is such kindly and thoughtful gestures that give one who is down in the stall the inspiration to rise again. My party was not too much of a surprise as I had not been feeling 100 percent for sometime, but I hardly expected it would be the type it was and staged under practically Broadway billing. Since it had to be, I could not have had better medical attention and care, and I pay great tribute to my good wife Anne for her smart generalship and the National Aniline Officials for their 100 percent cooperation. That's the team that beat the boy with the horns and the cloven hoof! It was a ruptured blood vessel in the brain area and the operation they performed took care of the trouble in a most remarkable manner. They are well versed in such surgical procedures at the wonderful Presbyterian Hospital and if any 15'ers or their friends are in medical trouble I suggest they contact this wonderful institution. It's at 710 West 168th St., New York City — a stone's throw from George Washington bridge. At present I am enjoying a home rest of a few weeks and hope by mid-March to begin to circulate gradually again. For a time it will be mostly between the house and the office by reason of a strict diet. I have lost 21 pounds to date, and no driving allowed. The tests to date show no apparent brain cell damage, which is quite well understood since what is not present naturally cannot be damaged (Al's sense of humor!) and there is no muscular restriction apparent, as yet. So the moral of this story is be your age plus 20 and to keep healthy be as thin as your pocketbook when you have a party a lá medicalé. It's WONDERFUL to have such WONDERFUL friends!"

Bert Adams is giving you leaders in the grandpappy's league some new competition — another granddaughter born December 31 at Huntington Hospital, Long Island, New York to his daughter, Mrs. George Toumanoff.

In a letter headed "strictly confidential," Charlie "Speed" Williams wrote: "'Twas a grand party from everyone's point of view. However, I am afraid I did not do too well as a collector of funds. I hope I turned over the proper amount to you, including my share. In any case, enclosed is a check for $10.00 which, if I did do my part, can be added to the funds of the Class. And, I hope my breaking into song as we were leaving didn't prejudice you with the Club management; if it did I shall be glad to make amends. It was a lovely party." If we didn't know Charlie so well, we would almost feel this was an apologetic letter.

Max and Clive continue to keep 1915 right up there in the Alumni Fund. On January 27 Max wrote me: "As a result of three gifts for a total of $9,000 our Class is in a Blue Ribbon group — one of the five Classes that hit five figures: 1915 for

$13,207." Nice going, Max and Clive, keep up your good work.

One day this past winter Gilbert Mar, M.I.T. 1951, son of Pellian T. Mar, 1915, wrote me from Dansville, New York where he has a good job with Foster Wheeler Corporation that his brother, William Mar, third mate aboard M/S "Union Mariner" would arrive in Boston and he would like me to look after him. It was a pleasure to meet Bill Mar and help him get to New York State to see his brother. He said Pellian has retired from the Nationalist Chinese Navy and with his family is living somewhere in Formosa. Bill invited Frannie and me on board his ship for a native Chinese dinner, but unfortunately we could not make it.

A nice long letter from Louie Zepfler shows he certainly is enjoying his retirement, and I hope some of us in the Class can get to see him. His address is 1216 Maryland Avenue, Cape May, New Jersey. "Your notes in the December Review mentioned that you had a projector. I am therefore enclosing four slides which I took at our New York meeting just about two years ago. If they are acceptable please add them to your collection. I was sorry not to be able to attend the Reunion. We go to our Minnesota Lodge early in May to get the garden planted as the season is so short. Since I retired from ESSO in May, 1954, we have done considerable travelling. Our plan is to travel North or West in the summer using our Minnesota home as a base (We can't stand the heat), and travel South and Southwest during the winter, using our Cape May home as a base. During the summer we rent our Cape May place. In that way we have covered the continent from Florida to Los Angeles and from Lake Louise to New Brunswick, Canada. This year we are hibernating at Cape May waiting for April when we hope to set out for San Francisco then back to Minnesota. Fred Bailey was here just before we got back in October and we're sorry we missed him. If any Classmates get to Atlantic City we are only 40 miles south, in fact, the Garden State Parkway brings one down from New York in only three hours — and we love company. In Minnesota we really live from May to October. Our place is on Lake Minnewawa, McGregor, 125 miles north of Minneapolis and 60 miles west of Duluth. We enjoy an air conditioned climate there using blankets every night. I am vice-president of the Lake Minnewawa Improvement Association and am really learning how to practice conservation. The fish ladder we installed on the dam and culvert we are putting in to develop a rearing pond bid fair to populate our lake with many walleyes and northern pike. We would be delighted to have any Classmates as visitors. We have adequate sleeping facilities and the fishing in our boat should be excellent this June or September. We were in Cambridge on October 1 and fully intended to see you but I hadn't seen my daughter in South Lincoln for over a year and were at the end of a long trek from Minnesota to New Brunswick, and because we had such poor motel accommodations we pulled out two days ahead of our plans and drove through to Cape May. To bring you up to date on our vital statistics, my son has two boys, three years and one month respectively, and my daughter has a son almost twelve. And now our best wishes to you and your wife, together with the highest commendation on your excellent Notes." A wonderful letter, Louie, and thanks for everything!

Some time ago I mentioned Carl Dunn in Chicago as one of the best supporters of this column, which he shows by sending us a series of cards from his recent round-the-world trip. These cards are colorful and fascinating and give one a wanderlust to see these distant and exciting lands. Before leaving, Carl wrote from the Michigan Northwoods Hunting and Fishing Club at Ishpeming. "In my opinion our Class Reunion was a great success and most of the time the weatherman cooperated. It was a most congenial group, and a very friendly attitude prevailed at all times. For the Class records I am sending separately a set of the 35 mm. transparencies that I took of Class members, some of which are only fair due to the direction of the light. The picture of the whole group is rather surprising since the light was poor — but there are no shadows or people squinting because of strong light. I'll drop a card from Bombay advising on the weather there in midsummer."

Let's follow Carl around the world: First from Paris, "I have put in two active days trying to see as much as possible in that short time. We leave at noon for Athens. This trip is business in India and Honolulu with a few extra days." Next, from Egypt: "We found a day at Athens very pleasant and the people friendly. With a guide and car we saw as much as possible. Yesterday we visited the Pyramids, mosques, and a night club here in Egypt and today will take a river trip. It's not too hot here by mid-west standards." Then from Calcutta, "This is the 9th Independence Day here in this old country. It is also no summer resort at this time of year but nevertheless it has been a very interesting trip." The last from Honolulu: "Reached here last evening after the long and tiresome flight from Calcutta, with stops at Rangoon, Bankok, Tokyo and Wake. A relief from the humidity and the very bad smells of the Orient." Ah me, would that we could get on one of these magic carpets and do the same thing. Many thanks, Carl, for remembering us.

We were delighted with the many Christmas cards from all over the country which warmed our hearts with their friendly messages. The most distant one from Henning and Avice Berg of San Francisco. They were at the Reunion and wrote: "It was a swell Reunion." Frances and Henry Daley sent a picture of their new home in suburban Philadelphia with a note: "Just a word to you, Azel, to congratulate you on the wonderful Reunion last June. It was perfect to the very last detail."

Pauline and Louie Young sent us a card showing a fisherman casting from a boat with his twisted line spelling "Greetings" ending with a hook on the end catching in the mouth of a colorful green, red and silver fish. That would be just like Louie. A blue print holiday message from Santa on Loring and Ruth Hayward's card — always the typical engineer is Loring. A typical winter scene that could easily be "Windy Acres" in New London, New Hampshire, a truly beautiful card, came from Speed Swift: "Right now I'm playing my cards 'close.' Strict diet, afternoon nap, bed early." Charlie Blodgett's widow, Cynthia, always greets us at Christmas. This year she wrote: "Leaving for California to spend the winter with my son, Robert." Phil and Helen Alger sent a four-verse poem as they do each year. A sentimental touch! And even at Christmastime Ray Stringfield gets in a plug for his native, or adopted Los Angeles with star marking its location on an outline map of the State, and a heading, "It is Christmas in Los Angeles." Ray's message: "We'll have our three children's families with all ten grandchildren over for dinner, so you can imagine our big table with 18." (Are there any Classmates who want to compete with this?) Sam and Evelyn Berke, from the snowy hills of Lakeville, Conn., "We hope that we can get to Boston so we can see you." Wink and Kath Howlett had a very spectacular card with beautiful bright block letters and we used it as a table decoration on our dinner table at Christmastime. Alice and Herb Anderson showed a photograph of their very attractive home on the cover of their cards and a pencilled sketch of the entrance on the inside. These are views of their Winding Brook Farm, Prospectville, Penna. Ruth Place, from Pasadena, Calif., on a very gay card wrote: "I hope that Azel can sit down and write one of his famous letters to me. I want to know all about the Reunion, and when you two are coming out this way to see me. Don't let me be the forgotten woman." Well, Ruthie got a long, descriptive letter of the Reunion, and all the happenings we could think of. We also sent her a Reunion picture. From their holiday greetings showing 15 young people and a dog, it looks as though Chet and Margaret Runels might be leading the grandparents League with this big family. It is difficult to distinguish which is which but these married daughters have done well by their parents.

Please bear in mind that it is of course impossible to mention the many, many cards that Fran and I were delighted to receive. And so many of them were cheery and very beautiful. The above are simply a few with messages of interest to the Class. The real long-distance card came from Wanhwa and Pellian Mar from Formosa with greetings in both Chinese and English. A truly beautiful card. Many thanks, many blessings, good health and good cheer to you all for remembering us.

Letters for Class Dues were mailed in February. This is not a high-pressure campaign; your contributions are necessary and acceptable. Do your bit, pay your dues, help Azel and give that new Class Treasurer, Henry Sheils, something to do. — AZEL W. MACK, *Secretary*, 100 Memorial Drive, Cambridge 42, Mass.

• 1916 •

In our cry for news, news, and more news Peb Stone came back with the following bit of information: He had an operation in October which included several uncomfortable incidents but has had a good recovery. Also he had had word

from his daughter that a seventh grandchild is on the way; his son has provided three boys and two girls. He goes on to itemize as follows: "Prospects for a 10-day winter vacation in St. Croix, U. S. Virgin Islands scheduled for the last half of February; conversion to a reluctant television viewer from an ardent nonconformist; change from an indefatigable smoker to practically a teetotaler since my operation (have a cigar after dinner now and then so as not to be too angelic); result – a new suit of clothes due to expansion amidships – probably cheaper to resume smoking; looking forward to our 40th Reunion and my five-year annual golf game." Peb adds that from this he concludes that he has a very uneventful life as far as publication is concerned but that we should give him an A for trying. That we do, that we do.

It was good to hear again from Henry Shepard who wrote: I am still working actively as a Manufacturers' Representative, covering Eastern Massachusetts and Rhode Island. I enjoy this outside work, and still find time for golf and a good long summer vacation at our cottage in Randolph, N. H. My 1914 Stanley Steamer still needs a lot of restoration work, but I hope that it will be in condition to drive down to the Class Reunion next June." We'll be looking forward to seeing you and your "Steamer" in June, Hen.

Francis Stern really set us up with news late in January – in reply to a request for news and in payment for a photo of our get-together in the new M.I.T. headquarters at the Chatham Hotel in New York. Here's what he says: "I hasten to answer your letter, which I found upon my return to my desk from a month in California. I think I told you at the dinner that I planned to spend the holidays with my children and grandchildren, and accordingly flew out on December 21 and back on January 19, coming back on a night flight. Now as to some material for the Class Notes. My own doings are relatively unimportant, but I do think I've got quite a bit of stuff to give you, inasmuch as I made it my business while in Los Angeles to contact all the members of our Class who were listed in those pages Ralph Fletcher gave me. My object was to try to drum up some enthusiasm for our reunion and to acquaint the boys of the Class with the information that Joe Barker had been honored with the Presidency of the American Society of Mechanical Engineers, and that he, Barker, was coming to California between now and convention time and would unquestionably recontact the various individuals and get those who indicated any interest to reaffirm their decision to attend the Convention. So – let's go, and herewith is my report. (1) Meade Bolton. Three telephone calls, no answer. Unsuccessful in reaching him. (2) Carl E. Carstens. Called twice, he called me back to leave word he was going out of town and was sorry we missed each other. (3) Jack Hepinstall. Does not think he can come to convention. However, he's writing a letter to Ralph Fletcher with whom he had some correspondence with regard to granite. Apparently Jack is in the construction business and on some big municipal job, he was considering the use of granite up Ralph's way. Unfortunately, he does not think he can get East. (4) Robert M. Kallejian. He manufactures a stomach remedy, and sells it mainly through drugstores throughout the United States. He apparently is a definite prospect for the Reunion in June. (5) Capt. Harold Larner. Harold is retired from the Navy. Unfortunately he has not been too well, and has been bothered with arthritis which has troubled him a great deal. He says he probably won't be able to make the Reunion. (6) Levering Lawrason. Lev indicated that although he would very much indeed like to come, he says he doesn't think there is a possibility of his being able to do so. (7) Irv McDaniel. This, of course, wasn't a 'selling job'. It was just a Reunion and I imagine that unless something very unexpected comes up, Irv will be there with bells on, as I knew he would be. Incidentally, Irv told me the smog has gotten so bad down in Covena that he was in the throes of selling his beautiful place down there and moving out onto the high desert country near 29 Palms. (8) Archibald G. McLay. He is an attorney. He was East last year with all the Kiwanis group, so there is no opportunity of his coming East this year and although he was Course II, he is pretty well out of touch with the Institute. (9) C. Walter Metz is at Douglas Aircraft. When I finally reached him, it was after he had been on a shift which took him up to midnight. He said their research work is such that he doesn t see there is a prayer in the world of his being able to get away in June. I should have liked to have met him because I vaguely remember him from school days, but when we finally did reach each other on the phone, my time was spoken for. (10) I also found the name of L. Plitt Smeltzer. I couldn't find him in the telephone book and none of those I contacted in the Technology Club in Los Angeles knew him. (11) Kenneth M. Sully. Of course we all remember Ken who was president of the Class his junior year. Ken is with the City of Los Angeles, and has every hope of coming East to the Reunion. His sister owns the East Bay Lodge at Osterville, her name is Agnes Leghorn (Mrs. George M.) (Yes, Francis, we remember her at our 25th or was it our 30th?) (12) Harry E. Whittemore and I ate lunch together on Monday, January 16, and he left the next day for San Francisco where he was taking his first vacation in about 15 years, going over to Honolulu. Harry is a very successful lumber wholesaler, and we had a real 'chinfest' and a grand time together. Harry lived in Alaska for many years, and then went down to San Diego and has been in business in Los Angeles only for about the last ten years. I certainly hope he can come to Reunion because he could add much to the pleasure of our days by telling us some of the wonderful things that I learned about the movement of lumber over the ocean from Oregon down to southern California. I'm sure, now that he's gotten sense enough to take a vacation, that with a little urging he'll be able to take another one in June. (13) William R. Willetts is the proprietor of a veterinary hospital for dogs. He wants to go to Europe and particularly visit Egypt and if he doesn't go in the early spring, then he may possibly go during the summer and, if so, he will try to arrange his trip at such time as to be at Reunion before sailing. He promised to write to Ralph. Although we made two dates in an attempt to get together, one or the other of us had to break them. (14) Alfred S. Nibecker, Jr. has just been retired after thirty years as the Superintendent of the School Systems of the City of Los Angeles. He was chief architect and business manager for all the Los Angeles schools and says that for the immediate future he just wants to loaf, relax and take things easy, although he has had a number of opportunities to open up an office as consultant. However, he feels that after so many years as a public servant, he does not want to get involved for at least a year. Lastly, the Southern California or Los Angeles Club (I don't know which they call it) is very active. The president of it is Sam Lunden of the Class of '21, and one of the other officers is Robert Wells of the Class of '15. I tried to see one or both of them, but was not successful, for the last several days before I left I got involved. Both of my grandchildren, my daughter and my wife developed a 24-hour virus each at a different time, and many of the appointments I made had to be cancelled while they got back on their feet. They all recovered in 24 hours, but they all simultaneously were perfectly willing to die the first twelve of those hours, for that's the kind of bug which was floating around L.A. this winter. I did, however, leave word with several of the boys to bring up the question of our Reunion the night of January 18, when the Los Angeles group had a Club meeting to which I was invited. However, that was the night I flew East so I had to miss the fun and the opportunity of getting the local group to work on our Class members." Following this report of his activities in L.A., Francis then noted that he was to fly to Nassau the first of February to join Ben Munch of the Class of '13, whose yacht is at Nassau and "with whom I have the privilege and pleasure of spending a couple of weeks in the winter and generally again in the summer on his very luxurious and comfortable yacht. I shall be back February 14 and hope that between now and April 15, when the trout season opens, that I may be able to stay home and enjoy my own home pond for a little while."

In response to our request for attendance at the meeting of the Class members from the Greater Boston area at Joseph's on Feb. 27, – Jack Hickey wrote: "Sorry to miss this dinner. Am leaving on an 18-day cruise Feb. 18. Surely hope to make the Class Reunion in June." Doug Robertson wrote: "I expect to be in Jamaica but look forward to being at the reunion next June." And, Frank Holmes wrote that he expected to be in Florida at the time of the dinner. We'll report on the dinner in the next issue as it is mid-February at the time this is being written.

Harvey Stocking recently came across with a nice return reply to a request for news. Here's what Harvey says: "There's really not much to write about yours truly but here goes anyway. Still in the same business berth since I wrote last, namely the Samuel Croot Company, Inc., a New York advertising agency. I have finally

ascended to the vice-president status so all is well. My job is mostly handling accounts. But I have a rather nebulous hold on the copy department and the title of copy chief. The rest of my portfolio is general supervisory work on production for others' accounts. Since I learned the advertising business from the ground up I am more or less a walking encyclopedia of 'how to do it.' Naturally it's handy for others to have this knowledge where it's easy to get at. So I do have to answer a lot of questions, which is all to the good, I suppose. Anyway, I get a lot of fun out of it. Still putter around boats and do a bit of landscape painting as my avocations. However, boating-wise I have scaled down my operation from a 24½ foot cruising sloop to a 12 foot catboat. The resulting saving in time and effort is considerable. The pleasure, however, remains."

Dr. Vannevar Bush, retired as president of the Carnegie Institution of Washington on January 1, 1956, after having served as president of the Institution since 1938. Dr. and Mrs. Bush plan to live in New England, where they have maintained a residence for many years. Their homes will be in Jaffrey, N. H., and in Belmont, Mass., and he will have an office at the M.I.T. He certainly has many accomplishments to his credit over the years, and let's hope that the years ahead will provide him with many more opportunities to continue his many fine works.

Remember, this is the year of our 40th Reunion. June is the month. The 8th, 9th and 10th is the weekend for the celebration at Oyster Harbors Club in Osterville, Mass. The 11th is Alumni Day and in the latter part of the afternoon we will have our Class Cocktail Party for members, wives, sons and daughters and guests. We certainly are looking forward to a wonderful weekend, and we're planning on a tremendous turnout. Remember to save these dates. That's our weekend. — RALPH A. FLETCHER, *Secretary*, P. O. Box 71, West Chelmsford, Mass. HAROLD F. DODGE, *Assistant Secretary*, Bell Telephone Labs., 463 West St., New York, N. Y.

• 1917 •

Walter Whitman, who ran the very successful United Nations atomic energy conference at Geneva last August, gave the M.I.T. Club of New York some very interesting sidelights on that conference at a dinner meeting in New York on February 2. About 350 Alumni and friends attended the dinner. Every one present realized that without Walt's friendly, nonpolitical, and objective handling of the nations represented (including those who are politically suspicious of one another) the conference would not have been the constructive and worthwhile event that it proved to be. The following Classmates were present at the 1917 table to make Walt feel at home: Justin Basch, Ray Brooks, Enos Curtin, Ken Lane, Benjamin Levy, Dick Loengard, W. I. McNeill, Howard Melvin, A. R. Morton, Alan P. Sullivan and Donald Tarpley.

From Arthur Knight: "1955 was a very active year for me. I was District Governor of Rotary International for the year ended June 30, which incidentally was the Golden Anniversary of Rotary. Rotary was originally formed on February 23, 1905, and we had numerous observances in the form of special Club, Inter-City and District special occasions during the period from February 23 and June 2, 1955. I ended my very active year having made over 60 addresses before Rotary Clubs and other organizations. Rotary had a special project known as "The Four Way Test" which we made available to various organizations at the community level, to public office holders, to businesses and to high schools. I thought it was an especially effective program to improve ethics among high school children and I appeared before approximately 5,000 such children as a speaker during high school assemblies that were especially devoted to this project. We introduced the program into 14 high schools in my Rotary District as a result. At the end of my term as Rotary District Governor I was appointed for the new year beginning July 1, 1955 a 'Counselor' of Rotary and was assigned a large area in Eastern Canada and Eastern United States. I find this a particularly challenging job and among other things it involves conducting educational Institutes on Rotary philosophy before groups of officers of various Clubs who come to a central point for this type of instruction. I finished all my Canadian and part of my United States work during the calendar year 1955 but still have some work to do in the United States during the early weeks of 1956. I made a special trip to Europe of five weeks duration in August and early September of 1955 and spent 10 days attending the Centennial of the World Alliance of the YMCA in Paris. One day when returning an automobile which I had rented from a rental agency I ran into Stanley Lane who came to the agency for the purpose of renting a car to drive his party to Switzerland. He was also attending the Centennial of the YMCA. I also appeared as a speaker at Rotary Clubs in Western Europe and returned by way of Portugal where I spent five days. I enjoyed the holiday period just ended with a little visit to Pinehurst, N. C. where Kathryn is benefiting from a little rest cure. All these activities as described were over and above the usual routing of business details."

Dick Logan: "I am getting older, along with all the rest of us, but so far have been reasonably successful in keeping out of the hospitals and other places where we all eventually end up. My wife and I live rather quietly in Arlington, where we have made our home for the past five years, and about the most excitement we have is when we go to Long Island to visit our daughter, Mrs. Sydney G. Tilden, Jr., who lives there with her husband and one and eight-ninths children. My business activities are more or less the same as they were back in 1919 when I came with Charles T. Main, Inc. We manage to keep busy doing consulting engineering work in connection with the preparation of plans and specifications and supervision of construction for industrial plants, hydroelectric developments, and miscellaneous other projects. At the present time I am treasurer of the corporation and a member of the board of directors, treasurer and member of the board of directors of John A. Stevens, Inc., and a partner in the firm of Uhl, Hall and Rich, consulting engineers for the Power Authority of the State of New York, who are doing the engineering for the St. Lawrence Power Project. So far as outside interests are concerned, we have developed the habit of spending part of our summers in Maine, where I have done some small boat sailing, and during the winter I have recently become inoculated with the curling bug and have enjoyed curling at the Winchester Country Club and on some of our other friendly sheets over the past three years. As I trust all of the '17's are doing, I am looking forward to our next 5-year reunion and am quite sure that no business commitments will interfere any more with my coming to these affairs."

Dick Loengard says: "From a business standpoint I have to report that United Chromium, Inc., of which I have been president, having been a wholly owned subsidiary of Metal and Thermit Corporation since 1945 has, effective as of the first of this year, been integrated with the parent company and is functioning as the United Chromium Division of Metal and Thermit Corporation, of which I am vice-president and a director. This is a step which I think was indicated as desirable from every standpoint because with the growth of both companies, and parallel development in certain closely affiliated lines, makes it possible to utilize manpower to the best advantage and eliminate unnecessary duplications. From the personal standpoint I am in the position of having three children, all of whom graduate from Institutes of higher learning in June of this year; one son now being a senior at Harvard, one son finishing his third year at Harvard Law School and a daughter completing her fourth year at the Yale School of Architecture after having graduated from Wellesley. None are married and therefore I am falling way behind other members of the Class in the interesting game of counting grandchildren. My wife and I continue to divide our time between our New York apartment and our place in East Norwalk, Connecticut."

We regret to report that Harold A. Knapp died on January 19. He was president of the Norfolk and Dedham Mutual Life Company.

Roy C. Sylvander recently retired as Director of Engineering of the Eclipse Pioneer Division of Bendix Aviation Corp. — RAYMOND STEVENS, *Secretary*, 30 Memorial Drive, Cambridge, Mass. W. L. MCNEILL, *Assistant Secretary*, 270 Park Avenue, New York 17, New York.

• 1918 •

The long arm of coincidence has a powerful biceps. In January, pursuing ends on the professional side, I journeyed to the Great Northern Paper Company in Millinocket, Maine, far from the unavoidable complexities of massed humanity, the encircling rumble, and the grime of industrial concentrations. This pleasant assignment came through the courtesy of Elliot P. Knight'23, at the suggestion of Professor Edward R. Schwarz'21, of the Mechanical Engineering Department. At the hotel, establishing a continuity with the long gone past, I met Fred Washburn

who, with clear conscience and honorable purpose was there as a travelling safety engineer for the Employers Group, at the moment charged with the responsibility of lowering still further the accident rate of lumber jacks who cut about 350,000 cords of pulp wood a year. When Fred started on this job in the mill there were 89 lost time accidents per year per million man hours worked. It is now down to 15. In the woods it was 125 lost time accidents per year per million man hours. Now it is 58 and still going down. Some crews have cut as much as 15,000 cords of wood without a single lost time accident. Anyone who has had experience with axes, power saws, and falling timber knows how remarkable this record is.

On the more personal side Fred's record is equally impressive. He has eight children, and to date fourteen grandchildren though all eight units are not yet in production. Eventually he may need a card catalogue to keep the branches of the family tree from falling on his memory. On Christmas Eve last, he solemnly reports, there were 29 children, in-laws, and grandchildren in his house, all jubilant with none standing timidly silent. No cold drizzle of discouragement in this family, though when those original eight were small there must have been late afternoon occasions which the Mrs. would have secretly labelled "the arsenic hour." Not long ago she went around the Gaspé Peninsula with Fred as a vacation jaunt. Stopping in some remote village, where local color was unpainted and the French language as well as customs defied change, they went in to dinner. With an air of conscious superiority, Fred surveyed the menu, printed in French, and confidently expecting her to request a translation asked his better half what she would have. To his amazement she said, "The fried chicken, green beans, and baked potato." How had she come so suddenly by such sophisticated a vocabulary? Ah, the broadening horizons of travel. They never leave us quite the same again. One side of the menu was in English, the other in French!

From Blanche Hanley comes more detail of Jack's last days. He had a series of heart attacks, beginning the last of September, which he thought were mostly just indigestion. Apparently the doctor knew, but did not reveal the seriousness of what was happening. Jack's courage never flagged, his mental alertness was undimmed, and that delightful wit which those who knew him associated with his tilted head and side-long glance, sparkled right up to the end. As Blanche says, after his earlier experience of emotional frustration and prolonged bodily pain, we can be grateful that he did not suffer another prolonged siege. He was a loyal and beloved Classmate, a furnace of living strength, a blithe spirit despite suffering which would have soured a less courageous man. — F. ALEXANDER MAGOUN, *Secretary*, Jaffery, N. H.

• 1919 •

Your Class thanks all who are continuing to send in news for this column.

Elliot D. May wrote this month to say that he is now located in Greensboro, N. C. He and Mrs. May have bought a house at 406 N. Mendenhall Street. Daughter Eleanor is a Junior at U.V.M. and David is a Freshman at Brown. Elliot left Winchester, Mass. last year when his company "Baxter D. Whitney and Son, Inc." was sold and relocated in Greensboro at the Newman Machine Company and he is chief engineer for them.

John O. Merrill writes that he has been busy as the partner of Skidmore, Owings and Merrill in charge of the design of the new Air Force Academy at Colorado Springs.

Robert A. Montgomery writes from 1320 Devon Road in Winter Park, Fla. that "Since retirement January 1, 1954, spent six months on West coast last winter. Then bought a residence here in Florida. Am enjoying the climate, golf, Men's University Club and many friends."

M. A. Michaels writes from Montclair, N. J., "As are most of the members of the Class, we are getting older and beginning to be conscious of it. Since our main interest is in building security for our younger son we have embarked on a big expansion program in our business by buying eight new Brown and Sharpe automatics and by buying a building in Belleville, N. J., to house them and the rest of our business."

Kimberly Stuart passed through New York on his way to South America and we had a chance to visit with each other on several occasions. He has retired from active duty as President of Neenah Paper Company Neenah, Wisc., and is taking life a little easier on his ranch in Nevada and an occasional trip.

Your Secretary had lunch with Jack Meader on several occasions recently. He is now with Granbery, Marache and Company, 67 Wall Street, New York.

At the M.I.T. dinner meeting on February 2, your Secretary found and had a chance to say a few words to Izzy Paterson, Paul Blye and Jack Meader.

Robert B. MacMullin will be honored by the American Institute of Chemical Engineers Northern New York section for outstanding work in his field. Congratulations.

The following 1919 men are listed as members of the M.I.T. Club of New York in their current directory: De Lima, Gilbert, Hanson, Mayer, Meader, Parsons, Paterson Smoley, Strobridge, Wiren, Wolfe. How about some additional 1919 names on the list to enjoy the new New York facilities, meet the boys and have a meeting place in New York? — E. R. SMOLEY, *Secretary*, 385 Madison Ave., New York, N. Y.

• 1920 •

A welcome letter from Foster Doane waxes enthusiastic about Frank Badger's vacation resort at Hollywood Beach, Fla., address 1500 North Ocean Drive. Foster says it is only a short block to the excellent swimming beach there and is directly on the inland waterway. He enclosed some color pictures which prove that it is certainly an attractive and comfortable looking place. Frank told Foster that he was the first one of the Class to stay there. Judging from Foster's experience, he ought not to be the last. Foster just dropped in to see what it was like as he had heard Frank speak of it. He and Mrs. Doane liked it so well that they spent a good part of their vacation there and were joined by their two boys, Bill, who is a senior at the College of Wooster, and Foster, the older boy who is with U.S. Steel at Gary, Ind. Before settling down at Hollywood Beach the Doanes spent a few days in New Orleans and Mobile. Foster thinks that we have been passing up a good thing not to take advantage of Frank Badger's fine facilities. Maybe we can't arrange a regular Class Reunion there but I for one intend to get down there sometime if I can possibly work it and I hope some of you will feel the same way. Foster is Production Manager of Bergstrom Paper Company at Neenah, Wis. and says he is kept busy by a big expansion program going on there.

Very likely most of you saw Lary Hitchcock's feature article in the January 22nd issue of *This Week* magazine. The article included a very excellent picture with the following caption: "Smog fighter": Dr. Hitchcock, one of the country's top chemical engineers, was an independent management consultant in 1954 when he accepted the presidency of the Southern California Air Pollution Foundation which has since shortened its name and broadened its scope by becoming simply, the Air Pollution Foundation. It was felt that Los Angeles was getting only a foretaste of a danger that would soon engulf the nation. The Foundation carries on research, evalutes current knowledge and sponsors anti-pollution projects throughout the country. "We find the facts and let the chips fall where they may," says Dr. Hitchcock.

Dr. Bob Aborn has left Short Hills, N. J. and his new address is 2407 Mt. Royal Blvd., Glenshaw, Penna. Henry Russell Murphy has left Lebanon Springs, N. Y. and his new address is Herriman Farm, Monsey, N. Y. Nick Smoley is now in Fort Wayne, Ind., address 3606 South Calhoun Street.

We report with sorrow the death of Gorham L. Cross, 10 Valley Road, Wellesley Farms after a long illness. He had been president of the Banker and Tradesmen Press, Inc., and also treasurer of Warren Publications, Inc. He is survived by his wife, a daughter and three sons. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

• 1921 •

A mere two months hence our gala 35th Reunion opens at the Sheldon House, Pine Orchard, Conn., on June 8 and runs through June 10, when we will all travel to Cambridge for the big annual party of the Class of 1921, which is always held just before the Alumni Day banquet, coming this year on June 11. Note these dates on your calendar and work them into your itinerary for this spring so you will be among those enjoying another of our long series of outstandingly successful gatherings. Chairman Mel Jenney and his 35th Reunion Committee have programmed a get-together cocktail party and buffet supper for Friday, June 8 and a banquet for the evening of June 9, with ample entertainment. Daytime activities include golf, tennis, sailing and the many other diversions for which the Sheldon House has such superb facilities, — even just plain

chair-sitting on the broad verandas and spacious lawns overlooking the Sound, for those of us who may prefer less strenuous exercise. Whatever you may choose for relaxation, come to Pine Orchard and indulge in it with the representative group of your mates from yesteryear. You'll find a royal welcome awaiting your arrival, whether it's your first time or you're a regular attender. We all want to see you and include you in the sheer fun of being back with the gang. Better plan especially to be there this year. Time is getting short and we must all make the most of what we have left before the ranks grow thin. Send in your reservation at once. For special information on the Reunion and related matters, address inquiries to Melvin R. Jenney, 35th Reunion Chairman, in care of Kenway, Jenney, Witter and Hildreth, 24 School Street, Boston 8, Mass. Reunion mailings have been sent out for us by M.I.T. only to the official Alumni Association list of names of the Class of 1921. Members of neighboring classes who were associated with us and who wish to receive these mailings are asked to write to C. A. Clarke, Secretary, 215 Linden Avenue, Glen Ridge, N. J.

As noted in earlier Class notes, the Alumni Day banquet will be held for the first time this year in the John Rockwell Cage on campus in Cambridge and not in Boston as has been customary. The locale for our annual party for members of the Class, wives and families will therefore also be changed to a suitable and convenient meeting place in Cambridge, not far from the Cage. Watch this column, the later mail notices and the bulletin board in the Rogers Building on Alumni Day for an announcement of time and place. Ted Steffian and Chick Kurth are planning this affair with the assistance of our photo-historian Bob Miller. It will greatly aid the Reunion Committee and your Secretary if you will complete the questionnaire sent with the mail notices and return it to the latter promptly. This is our only means of knowing how many to plan for at the Reunion and also our only means for keeping Class records up to date and revising the information you sent in five years ago. Your Secretary will forward additional forms if you have mislaid the mailed ones. Please disregard the similar forms in later notices and accept our sincere thanks if you have already sent in a completed questionnaire from an earlier mailing.

The first mail returns to the date of preparation of these notes early in February indicate that the following will definitely be present at the Reunion: Fred Adams and Jack Barriger from Chicago, Ed Chilcott and Jack Kendall from Pasadena, George Chutter, Vern Cole, Ed Rose, Ray St. Laurent, Saul Silverstein and Charlie Williams from Connecticut, Andy Deane from Indiana, Harry Field from Hawaii, Jack Giles from Texas, Judge Greene from Maryland, Bill Loesch from Cleveland, Helier Rodriguez from Cuba, Rufe Shaw from Philadelphia, Miles Zoller from Cincinnati, Bill Sherry from Tulsa, Cac Clarke, Munnie Hawes, Sumner Hayward and Joe Wenick from New Jersey, Bob Cook, Irv Jakobson, Moose LeFevre, Warrie Norton, Paul Rutherford and Dick Spitz from New York, Mich Bawden, Walt Hamburger, Roy Hersum, Mel Jenney, Chet Knight, Chick Kurth, Charlie MacKinnon, Leo Mann, Herb Nock, Harry Rosenfield, Ted Steffian, Bill Wald and Al Wason'20 from elsewhere in New England.

Also definitely planning to be with us are: Al Bachmann, Charlie Briggs, Larry Buckner, Carl Cohen, Larry Conant, Josh Crosby, Arnold Davis, Bob Donworth, Lew Edgarton, Ben Fisher, Si Freese, Joe Gillson, Luther Goff, George Gokey, Manny Green, Jack Healy, Harry Johnson, Gus Kinzel, Ed Lockwood, Bob Miller, Sam Moreton, Phil Nelles, Ed Noyes, George Owens, Ernest Pauli, Lark Randall, Larry Richardson, Holland Robb, Palmer Scott, Preston Smith, Dick Smith, Whit Spaulding Mike Treshow, Art Turner, Ralph Wallace, Ev Wilson and Irv Winslow. If you are not listed here, return that questionnaire form at once and let your committee know that you will attend. Additional lists of names will be published in this column as soon as data are received. Please return the questionnaire whether you will attend or not.

Robert C. Dolle, our "goldfish farmer," owns and manages the extensive Lakeview Aquatic Farm in Cincinnati, Ohio. W. Corydon Kohl has moved from his former New Hampshire home to 100 Memorial Drive, Cambridge 42, Mass., which is also the address of Harold O. Bixby, who is now reported to be vice-president in charge of engineering for Transistor Products, Inc., of Waltham, Mass. Promotion from brigadier general to major general has come to James B. Newman, Jr. Edward M. Richardson reports a new home address in Fanwood, N. J. Fred M. Rowell gives his home address as Osterville, Mass. Richard W. Smith has a new home at 8713 Jones Mill Road, Chevy Chase 15, Md. New addresses are also reported for Colonel Philip M. Johnson, Clifton B. Morse and Major General Daniel Noce. Reunion mail for the following has been returned and receipt of their correct addresses will be appreciated: John J. Colleran, Francis J. Keenan, Rollin F. Officer, Jay H. Quinn, Howard L. Ross and Edward G. Sparrow.

Howard M. Forbes of Weston, Mass., was omitted from last month's list of members of the official M.I.T. family. Howard is a member of the Institute's Department of Defense Laboratories, with headquarters in the Whittemore Building, Cambridge. Further news of Jack Rule's Course IX-C for science teachers, gleaned from the *M.I.T. Observer,* indicates that the course had its beginning some four years ago when the Institute joined with the Harvard Graduate School of Education to prepare an integrated five-year program, aimed towards increasing the number of broadly trained science and mathematics teachers. Courses at both schools lead to the S.B. in general science from Technology and the M.A. in education from Harvard. The original small enrollment is growing, encouraged by newly-announced M.I.T. scholarships to sophomores who elect the science teaching option of Course IV. "Modernization of the Long Island Rail Road Passenger Car Fleet," was the title of a technical paper delivered by Philip H. Hatch, General Mechanical Superintendent of the Long Island, to the Land Transportation Section of the American Institute of Electrical Engineers at the New York winter general meeting in January. Captain Elliott B. Roberts of the U.S. Coast and Geodetic Survey is to be congratulated on the subject and photographic excellence of his picture of a stack of the S.S. *United States,* which appeared as a frontispiece in the February issue of the Technology Review.

John M. Giles, Course XII, independent oil producer, 1408 Grierson Street, San Angelo, Texas, is hereby officially welcomed back into the fold of the Class of 1921. Jack, who entered Technology with us in that crazy mixed up World War I period, has been listed with 1922 and has had his numerals restored to 1921 by the Alumni Association. He has been a faithful attender at our last several June Class parties and reports recent meetings with Bob Waterman and Eliot Underhill. A native of Amsterdam, N.Y., Jack became district geologist in Kansas for the Tidewater Oil Company on graduation and later was district geologist for the State of Texas with the McMan Oil Company. He has continued this activity as an independent operator, at the same time serving as vice-president of a family organization, the Philadelphia dyeing equipment manufacturing firm of Klauder, Weldon, Giles Machine Company. A member of the American Association of Petroleum Geologists, he is also active in the M.I.T. Club of New York, the Philadelphia Country Club and the San Angelo Country Club. He and Mrs. Giles have a daughter, Linn. Jack says he is looking forward to the Reunion, – and golf and fishing.

Palmer Scott boats, made by Marscot Plastics, Inc., of New Bedford, Mass., were on exhibit at the Motor Boat Show in New York. All based on one-piece glass fiber injection molded hulls, there are a number of varieties ranging from an 8-foot dinghy to a 22-foot cruiser. Dr. Joseph L. Gillson of Wilmington, Del., member of the Du Pont development department and geologist for the company, was elected vice-president of the American Geological Institute. A fellow of the Geological Society of America and of the Mineralogical Society of America, he is also vice-president of both the American Institute of Mining and Metallurgical Engineers and the Society of Economic Geologists. Joe received his Bachelor's and Master's degrees in geology from Northwestern and then the Master's and Doctor's degrees from Technology in Course XII. He taught mineralogy at the Institute until he joined Du Pont in 1929 to undertake explorations for sulphur, ilmenite, fluorspar, barytes, celestite and other raw materials as well as to make investigations of ground water supplies, foundation and site problems. He and Mrs. Gillson, the former Grace Brown'31, Course XII, have a son, Joseph, Jr., who was graduated from the University of Delaware; two married daughters, Jane, University of Michigan, and Patricia, Oberlin; and four grandchildren. We are glad to note that Joe is planning to attend the Reunion.

Saul M. Silverstein, President of Rogers Corporation, and his company were honored in January by the Turkish government, according to the Manchester, Conn.,

Evening Herald. Scrolls of appreciation for the part Saul played as one of a team of American industrialists who went to Turkey in 1954 to conduct seminars with businessmen there, were presented by the Turkish Consul General at a New York meeting of the Council for International Progress in Management, which arranged the visit under the auspices of the International Cooperation Administration. At the same meeting, Saul was elected to his third term as secretary of the council. Other officers are Professor Erwin H. Schell'12 and Harold F. Smiddy'20. Arthur N. Brambach writes that he is San Francisco punched card and electronic systems sales representative for International Business Machines Corporation and lives in Burlingame, Calif. He has been with IBM since 1931, until recently in Seattle, where he was president of the Sales Executives Club and a member of the Washington Athletic Club. He and Mrs. Brambach have a married son and daughter, both of whom attended the University of Washington, and six grandchildren. Many thanks for your kind words, Art.

Colonel Boyd W. Bartlett is professor, head of the department of electricity and member of the academic board of the U.S. Military Academy. A graduate of Bowdoin, West Point and Columbia, he received his degree with us in Course I while a member of the Corps of Engineers. A former physicist at the Bell Telephone Laboratories, he also taught physics at Bowdoin. He is a member of Delta Kappa Epsilon, Phi Beta Kappa, the board of overseers of Bowdoin and a trustee of the West Point Association of Graduates. He is active in the American Association for the Advancement of Science, the American Physical Society, the American Association of Physics Teachers and has contributed articles to numerous scientific journals. He holds the Legion of Merit decoration. He is married and has no children.

Robert R. Worsencroft has been professor of drawing and descriptive geometry at the University of Wisconsin, Madison, Wisc., since 1923. Married, he and Mrs. Worsencroft have a son, Robert, who was graduated from Wisconsin in 1949, and a daughter, Helen, who will receive her M.D. degree there this year. Richard P. Windisch has been with the New York firm of W. E. Burnet and Company since 1921, currently as chemical securities consultant. Dick has written a number of articles for *Chemical Engineering, Barron's* and the *Commercial and Financial Chronicle*. He and Mrs. Windisch have three sons and make their home in Scarsdale, N.Y. Lansing T. Carpenter of Haddam, Conn., former director of advertising of the Connecticut Power Company, has retired. He writes that he will be unable to attend the Reunion because his daughter, Grace, is graduating from the University of Colorado at that time. Barbara was graduated from Wellesley. The Carpenters have two other children, Lucile and Benjamin.

James F. Curtin is engaged in building construction with the Gillmore-Olson Company, Cleveland, Ohio. Former head of the Curtin Engineering Company, Freeport, Ohio, and then vice-president of the H. F. Campbell Construction Company of Detroit, he served as a lieutenant commander in the Navy during World War II. He and Mrs. Curtin have a married daughter, Jean, and one grandchild. Eugene S. Weil is vice-president of G. S. Robins and Company, chemical distributors of St. Louis, Mo., with whom he has been associated since 1922. A member of the American Chemical Society and Chairman of its St. Louis Section, he is also active in the Missouri Athletic Association and the Westwood Country Club. He and Mrs. Weil have a daughter, Nancy, Wellesley '53, and two sons, Eugene, Jr., University of Pennsylvania '58, and David, at home. John W. Shepard is Manager of the Industrial Engineering Department, Walworth Company, South Boston, Mass., and lives in North Easton. He is a past president of the Unity Church and of the Lions Club and a former commander of the American Legion Post. The Shepards have two daughters, Elise, who is in high school, and Mary, in grammar school. John reports seeing Herb Reinhard recently.

Andrew D. Maclachlan is with the Hood Rubber Company Division of the B. F. Goodrich Company, in Watertown, Mass. Herbert W. Gwynn is engaged in the preparation of standards and research bulletins for the Underwriters Laboratories, Inc., Chicago, Ill. He is a member of the National Fire Protection Association, the Standards Council of the American Standards Association and an honorary member of the LP-Gas Association. He is married and has no children. Herb says he occasionally sees Al Shaughnessy, who is vice-president and general manager of the Hertz System, Inc., Chicago.

Two of our classmates have been lost from the ranks and it is with heavy heart that we extend sincerest sympathy to their families on behalf of the Class. Robert Dow Fairbanks passed away at his home in Wellesley Hills, Mass., on December 25, 1955. A native of Newton, he was associated with us in Course IX–B, starting in our junior year. He had long been associated with Electrical Research Products, Inc., in Boston, and was field manager of its successor, the Altec Service Corporation. He is survived by his wife, Charlotte; a daughter, Mrs. Sarah L. Patch; a son, David, who attended Worcester Polytechnic Institute; and a granddaughter.

Vernon Heber Sanders had been associated with the Stackpole Carbon Company, St. Mary's, Penna., since leaving Technology. The date of his death has not been learned. A native of Durango, Colo., he had obtained his B.S. degree from the University of Colorado and joined us in the senior year. On receiving the master's degree in Course X, he joined the Stackpole engineering department and became assistant chief engineer and then manager of research and engineering.

Very urgent reminder: Make your plans now to be with the Class at the Sheldon House, Pine Orchard, Conn., next June 8, 9 and 10 and in Cambridge on June 11. Please return that questionnaire form to your Secretary now! — CAROLE A. CLARKE, *Secretary*, Federal Telephone and Radio Co., 100 Kingsland Road, Clifton, N. J.

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• 1922 •

In the February Review Notes, reference was made to material being sent out by the Reunion Committee which no doubt by this time has been received by all members of the Class. If you have not already done so please sit down and fill out the questionnaire so that the Committee may have the opinion of the entire Class.

Civil Engineering, January 1956, says "The building industry is safer than it used to be. This is the encouraging news William G. Rapp, assistant to the general manager of steel erection for Bethlehem Steel, gave the recent 43rd annual National Safety Congress. In the past ten years structural steel erection, once classed with the most dangerous occupations, has shown a decline from 82.7 to 25.9 in accident frequency rating and from 17.4 to 4.9 in severity rating. Sharing honors for the improved situation are building code revisions, equipment modification, and union emphasis on safety, according to Mr. Rapp." While Bill didn't say so, it wouldn't surprise us to learn that he had a hand in bringing about these improvements.

News of the doings of our Classmates has been very scarce in recent months. Perhaps we have more than our share of modesty but even that can be over-done. Don't reduce us to a one line report of "No news this month."

On hand for the annual mid-winter meeting in Walker February 1 were Appel, Dillon, Warren Ferguson, Keenan, McIntyre, and Horovitz, among others. The mid-winter meeting is well worth while and we hope more will come next winter. A special table is set apart for each Class.

Word has recently been received that Harold A. Bull of Garden City, New York, died some time during the spring of 1955. Cause or circumstance is unknown. William T. Haebler, vice-president, treasurer and director of Van Ameringen-Haebler, Inc., a New York chemical company, died February 6 at St. Mary's Hospital in West Palm Beach, Fla. His home was at Pelham Manor, New York. He is survived by his wife and three daughters and a granddaughter. Word has also been received of the death last year of Art Wasserman's wife. Our sympathy to Art and the families of Bull and Haebler. — C. YARDLEY CHITTICK, *Secretary*, 41 Tremont Street, Boston, Mass. WHITWORTH FERGUSON, *Assistant Secretary*, 333 Ellicott Street, Buffalo, N.Y.

• 1923 •

Received a nice letter from Benjamin Cooper (XV), President of Taller and Cooper, Inc., the firm mentioned in last month's notes as making all of the devices used at highway toll stations to thwart reluctant motorists. Ben gave an address before members of the Israeli Institute of Productivity in Haifa on May 24, 1955 and in Tel Aviv on May 29, 1955 which reads like a story from Jules Vernes. Ben predicts that electronics will eliminate the drudgery of brain work much the same as steam, electricity and internal combustion engines have taken over the drudgery formerly performed by muscular labor.

He concludes, "The problem still for the future is to keep human beings in communication with each other, in control of their robots so that the latter remain servo-mechanisms, as intended, and finally to put the lie to the legend of the Frankenstein monster."

John E. Burchard (IV) served as moderator at the mid-winter meeting of the Alumni Association, February 1, 1956. We understand he did his usual competent and affable job. Robert L. Hershey (X–A) recently became Manager of Du Pont's Polychemicals Department. After receiving his S.B. Degree in Chemical Engineering in '23, he stayed at the Institute as a member of the teaching staff until 1936, during which he secured his S.M. and Sc.D. degrees. He joined Du Pont in 1936 as manager of the ammonia department's semi-works installations and was appointed assistant research director in 1943. He was made assistant general manager in 1948, continuing in that capacity with the formation of the Polychemicals Department. He is married and has three sons and a daughter. He and Mrs. Hershey live at Kennett Square, Penna.

On December 27, 1955 the board of directors of the Philadelphia Electric Company announced the election of R. G. Rincliffe (X) as chairman of the board and chief executive officer of the company. He is also president. At the Institute, he secured a Master of Science degree in chemical engineering. Among other activities, he is executive vice-president and a member of the board of trustees of the Power Reactor Development Company, a director of the Philadelphia National Bank, a member of the board of managers of the Philadelphia Savings Fund Society, a director of the Fidelity Mutual Life Insurance Company, of the Benjamin Franklin Hotel Company, the Pennsylvania Chamber of Commerce, the United Fund of Philadelphia and is a member of the Chamber of Commerce of Philadelphia, the Union League, the Engineers Club and many others. Joining the company in 1923 as an engineering assistant, he progressed through various positions, including that of superintendent of gas manufacturing, purchasing agent, manager of electric generating stations, vice-president in charge of electric operations and executive vice-president. He became a director in 1950.

Albert G. Noble (II), Admiral USN, Ret., has been elected executive vice-president of Vitro Corporation of America, effective January 9, 1956. A month earlier he was elected vice-president and a member of the board of directors. After retiring from the Navy in 1951 where he had served three years as chief of the bureau of ordnance, he became executive vice-president of Martin-Parry Company of Toledo, Ohio and the Nordberg Manufacturing Company of Milwaukee.

Robert C. Sprague (XIII), founder and chairman of the board of Sprague Electric Company, North Adams, Mass., has been named chairman of the Federal Reserve Bank of Boston and its fiscal agent. He founded the company in 1926 while a lieutenant in the U.S. Navy, resigning from that service in 1928 to devote his full time to the business. The firm presently has 10 plants employing 6,000 persons across the nation. It is hardly possible to have a radio or television set without using some of its resistors and capacitors.

The meeting of the "brain trust" scheduled by President Jack Zimmerman took place partly a this office and partly at the new rooms of the M.I.T. Club of New York at Hotel Chatham on January 25, 1956. It was attended by Messrs. Zimmerman, Tremaine, Bond, Clapp, Redway and your scribe. Ever-the-salesman, Jack took three applications from the group for membership in the Club (and also got their checks). Redway was elected a member of the "trust" by virtue of having attended the meeting. (Easy – wasn't it, Al?) We are still talking about getting out a booklet on the 30th Reunion with some hopes it may be completed before the 35th Reunion in '58. In any event, it was decided that the 35th Reunion is to be the best ever, so start saving for it now and plan to bring the wife. Greetings were sent to all of you – we wish you had been there. – HOWARD F. RUSSELL, *Secretary*, Improved Risk Mutuals, 15 North Broadway, White Plains, N.Y. WENTWORTH T. HOWLAND, *Assistant Secretary*, 1771 Washington Street, Auburndale 66, Mass.

• 1924 •

As promised last month, no more flights into the realm of poesy. Straight reporting. Actually, not a whale of a lot to report, but here goes for what's at hand. By the time these notes appear this item will have lost some of the appeal it had in mid-February as we write. A card from the Schoolers announced that they're spending a few weeks in Palm Beach, a real vacation. They stayed at the Whitehall, "world's most beautiful hotel," it said on the back of the picture postcard.

Those of you at the January 4 dinner in New York will remember that a photographer roamed around taking pictures right and left. A couple were of our tables. Before long Pret will be sending his annual letter to the class and we'll reproduce these as an enclosure. Not all of us were included, and not all of those who were will be flattered. But you'll see a beamish shot of your president, a bottle of Johnnie Walker appropriately displayed in front of him. You will also get a good view of the back of Charlie Phelps's head and Ed Dunlaevy, from the eyes up. Some of us fared better.

Another entrant in the political arena, Webster B. Brockelman. Since the Brockelman boys sold out their chain of 16 grocery stores Web has been living a life of leisure, roaming around the country. Now he wants to be a selectman in Framingham, Mass. If the news picture is at all accurate, retirement has put a bit of weight on Web. The cover of Banking News for November shows an impressive shot of the newly remodeled quarters of the Second National Bank of Cumberland, Md. President Joseph M. Naughton announced the start of construction of the bank's first branch at a "gala celebration at which a number of valuable door prizes were awarded to lucky visitors." Samples of the bank's products, no doubt. Joe is not our only bank president now. In January Boston's Franklin Savings Bank boosted Maynard L. Harris from the post of Treasurer to that of President. Lank will best be remembered by many of you for his discovery of Good Old Joe sitting at his table at our 25th Reunion banquet. Wonder where he is these days? Haven't heard of G. O. Joe for some time.

A Christmas card we forgot to mention earlier came from the man with the most fascinating address in the Class, Kenneth B. (Ike) Walton of Sand Dune Shanty, Brigantine, N.J. Ike runs Kents Restaurant and Baking Company, in Atlantic City, and he hopes that any of us who come his way for conventions or whatever will look him up. Guess Johnnie Fitch survived the sendoff the N.Y. gang gave him, if a letter from Rio is any proof. He's down there as First V.P. of Companhia Auxiliar de Empresas Electricas Brasileiras (just call it CAEEB, it's easier), a management and service company for the eleven Brazilian operating electric utility companies associated with American and Foreign Power Company, the largest of their entities. Dolph Santos is with a rival outfit in Sao Paulo, and on a recent trip there Johnnie and he spent an evening together. Dolph doesn't often see any Classmates down that far, so it's a good bet it turned into quite an evening. Johnnie also extends a cordial invitation to any of us who get down Rio way to stop by. You know we're getting quite a contingent in South America, eleven now, if our directory is right. Granted that's not much saturation for a whole continent, but if you go travelling there it could be very helpful.

Among others who have moved recently is Hugh M. Craigie who has left Colorado for Santa Fe. Since we only have an RFD address it's not clear what he's doing. Paul Cardinal's son, John, a senior at M.I.T., will graduate in June, joining a lengthening list of other '24 sons on the Alumni roles.

A word about the Alumni Fund. By the end of January 140 of us had given close to $5,000, not too different from last year at the same time. However, we finished up last June with 239 men and $11,500. You who read these notes have already given. For that you have the sincere gratitude of your Class officers and of M.I.T. With the start you have made we hope to be able to equal or exceed last year's record performance. – HENRY B. KANE, *Secretary*, Room 1–272, M.I.T., Cambridge 39, Mass.

• 1925 •

The Class of 1925 maintained its good record of attendance at the M.I.T. mid-winter meeting held at Walker Memorial on February 1, 1956. It was possible to locate the following as being in attendance. Ave Stanton, Courtenay Worthington, Clarence Thulin, Hank Colby, Fred Greer (Fred's brother, Don, was present as his guest), Cap Ranger, Bill Arnold, F. B. Kent, Ken Robie, L. T. Gregory and Rusty Blair. Your Secretary was so involved in Finance Committee work for his home town of Braintree that he could not attend, but Ave Stanton reported that all those present appeared to be in good spirits.

The only bit of special information picked up from the group concerned Bill

Arnold who, as of February 1, became Manager of the Boston Office of the Sprague Electric Company.

A note has been received from Jim Clifford, XV, who considers himself a back-slider, having become a Professor of English at Columbia University. He enclosed a clipping from the New York *Times* of February 5, in which it is noted that the American Library Association has recently announced its annual list of "Notable Books." These books were chosen for the following factors: sincerity and honesty of presentation, factual correctness, literary excellence and contributions to man's understanding of himself and the times in which he lives. Included in this list is a work of Jim Clifford, a McGraw-Hill Publication, entitled "Young Sam Johnson." It would appear that Jim has done very little back-sliding and to have his work appear on such a list is a real credit to the engineering profession.

A little more information has come through on Irving Symonds. It appears that his headquarters will be in New York City, for, after February 15, he will be in Scotch Plains, N.J. — F. L. Foster, *Secretary*, Room 5–105, M.I.T.

• 1926 •

I've been puffing at my pipe for fifteen minutes hoping that something would start to run off the end of my fountain pen. Even writing Class Notes seems to require a bit of inspiration which is lacking this morning. With threatening weather we did not stay by the sea for the week end and the sound of waves rolling in is what's missing. However, Johnny Drum has provided the nautical background from Muncie, Indiana or more correctly from the Maine Coast via Muncie. Last summer, Johnny and his son Hugh, 13, spent a week cruising the Maine Coast in a 36 foot 'R' class sloop. The most delightful Maine cruising area is between Boothbay Harbor and Bar Harbor so it was only natural to select this area. Johnny loaned me his Log of the cruise which is most professional and certainly will become Hugh's most valuable possession by the time he is thinking about his 30th Reunion. I wish space allowed printing the entire log but perhaps a couple of excerpts will help get across to those of you who have sons that this is an eventful way to vacation together. "There were over forty yachts of all sizes and shapes in the harbor (Northeast Harbor) that night. It is one of the most perfect havens. We had a caller — Al Williams — of the Mark 1 — a cutter. He had five boys on board from Saint Marks and other schools and invited us over. We upped anchor at 8 a.m. and departed for Boothbay. The day was perfect, except no wind. We drifted along, Hugh still in the sack, until it freshened out of the South about 10:45 a.m. and Hugh quickly came to life." The whole log with its photographs and chart makes one drool and I am sure Johnny cannot wait for a repeat performance. It's a far cry from his busy life in Muncie as executive V.P. of Glascock Brothers Manufacturing Company, manufacturers of beverage coolers and a new pre-mix dispenser for Coca-Cola. Johnny, like so many of you, is all steamed up about our coming 30th Reunion — he is putting up a table top refrigerator for a prize, too! By now you will have received word from the Reunion committee of a different location for our 30th than the one I have been ballyhooing in the notes. The rug was pulled out from beneath our plans at the Hotel Belmont but this sort of thing has happened before. Reunions come early in the season and the hotels cannot open for us unless they have a fill-in after we leave. They always hope. This time we could not wait so chairman Cedric Valentine signed us up at Treadway's Inn at Coonamessett on Cape Cod. Your Secretary knows the place well because the Chemical Club of New England has met there on several occasions. It has everything needed for a good Reunion and the accommodations are in cottages which are very comfortable and well equipped and spacious. The cottages are wonderful places for bull sessions and if someone like Ray Mancha (my next door neighbor at our 25th) wants to play his banjo all night it's easy. All you do is wangle *your* cottage about a mile away. The Inn has excellent facilities and is the focal point for the cottages. There is an excellent golf course at the Inn and a private flying field where you can land in your company plane — believe it will take up to a DC-3. The location is even more convenient by any kind of transportation — it being only a few miles to Hyannis. Your committee did well to pull a rabbit out of the hat like this and I am sure the place will make for even greater success than the original location. You will get all the particulars from the Reunion committee but I thought a few personal opinions from one who was familiar with the place would be helpful. There are some news items that I must give you — Jim Killian has again been appointed by President Eisenhower to head an important board, this time with the assignment of making periodic checks on the government's foreign intelligence activities. Bill Hamilton dropped in at the office recently to announce that he is now located in Boston with Stone and Webster — he expects to bring his family on from Denver when schools close. Good news from Flint Taylor who is back home after a lengthy hospital visit. Flint phoned the other evening and asked us to thank all of you who wrote him while he was laid up — he is resting up with a vengeance and with firm determination of attending our 30th. Our Class had an excellent turnout at the mid-winter meeting in Walker which was chairmanned by "Pink" Salmon. Pink was up at the table with the brass but his two boys "Bogie" and Billy'57 sat with us. Cedric Valentine and son John were along and I had a couple of young cousins, Andy and Charlie Cornwall, with me. It's a good meeting to plant the seeds of M.I.T. Walker was so crowded that it was next to impossible to 'circulate' but the following Classmates were present — even if we were only able to wave to one another. Harvey Abbott, Bill Borghesani, Chet Buckley, Irv Cowperthwaite, Al Dolben, Bill Hamilton, Mal MacNeil, 'Ole' Olander, Stew Perry, Marv Pickett, Frank Toperza, Abe White. A clipping from Hartford, Conn. tells of Wayne Vosper's promotion to manager of planning for Royal Typewriter and from Springfield, Mass. comes word of Charles Knight's promotion to general superintendent of maintenance at Monsanto's Plastic Division there. Before closing I must give the current weight of our Saint Bernard pup, now seventeen weeks old. A month ago you will recall that Heidi weighed 55 pounds and I had given up holding her while I weighed myself plus the pup on the bathroom scales. Yesterday on the scale at the wholesale fish market in Rockport she weighed 80 pounds. It's taken a lot more than 80 pounds of horsemeat to get her there in these few weeks. What will she go by Reunion time in June? Any bets? — George Warren Smith, *Secretary*, c/o E. I. Du Pont de Nemours and Company, Inc., Elastomers Division, Room 325, 140 Federal Street, Boston 10, Mass.

• 1927 •

With regret we record the death of Fayette B. Darling in November 1955. For many years he was employed by the Northern Pacific Railway Company, formerly in Fargo, N.D., and then at St. Paul.

The discussions as to whether our 30th Anniversary Reunion should be held at Oyster Harbor or Cambridge continues. If you have any ideas on the subject, please let us hear from you. — Joseph S. Harris, *Secretary*, Shell Oil Company, Aviation Department, 50 West 50th Street, New York 20, N.Y.

• 1928 •

We must, with deep regret, report the death of Dick Titherington on January 7. The news came as a real shock to us since we had received a very cheerful note from him only a few months before. Dick had been ill for about a year and was in the hospital for a time. Although he was much weakened by his illness his family had expected that he would recover.

Those who knew Dick Titherington as a student will remember him for his brilliance and wit, characteristics that remained with him throughout a busy life. He was trained in Course V and, except for military leave in 1942–1946, was with the Department of Public Works, State of Massachusetts, where he held the position of senior chemist in the state highway laboratory.

Dick's unselfish service to the national cause began even before Pearl Harbor when he worked on development of camouflage paints under one of the Passive Defense Projects. With opening of hostilities he served with the Navy and was active in both Atlantic theater and Asiatic-Pacific theater. After the war he remained as lieutenant-commander in the Naval Reserve, specializing in anti-submarine warfare. In February of last year he made cruises with the Navy to Bermuda and the Virgin Islands and then to Spain and Portugal in June and July.

Breadth and variety seemed to characterize Dick's interests. Quite apart from his technical work he studied and practiced law. In 1952, Boston University conferred upon him the degree of LLB. He became a member of the Massachusetts Bar Association, Boston Bar Association and carried on a private practice to

the extent permitted by his other activities. As an instructor in electronics at the Naval Reserve Base in Hingham, he realized the need of a book on electronics suited to the needs of technical men of limited academic background. So he undertook to write such a book. The work was interrupted by his illness.

Devoted to his family, faithful in the service of his country, steadfast in his professional pursuits, Dick was a very successful man in the truest sense. He was much too modest to recognize this fully, but we do, and we are proud that he was our Classmate. Our sympathy goes to his wife Katharine, son Richard, and daughter Kathy. — GEORGE I. CHATFIELD, *Secretary*, 49 Eton Road, Larchmont, N.Y. WALTER J. SMITH, *Assistant Secretary*, 15 Acorn Park, Cambridge, Mass.

• 1931 •

If the fact that times were tough when we graduated has anything to do with building a 25th Reunion, it can now be said the pendulum has swung the other way. The more than 200 questionnaires (received so far) of 25-year progress by individuals indicate our Class is exceptionally well represented in industry, generally, and the 25th Reunion Weekend in June should be a session none of us would want to miss.

Your Reunion Steering Committee held its ninth regular meeting on February 14. Planning a three-day celebration for the increasing number of Classmates expected at the weekend in June is involving many details requiring a large working committee. The committee has grown since its first meeting in May 1955 and some of the activities have had their humorous side — as in the sixth meeting held last November. Then, your committee was served spaghetti at the Faculty Club with all the bibs and trimmings of a first class lobster dinner.

You would have laughed heartily had you been able to watch us manipulating — spaghetti, bibs and Reunion Weekend conversations.

While details of the weekend and progress to date will appear in a special bulletin mailed to members of the Class, we include here the list of committees from which you can visualize the many activities and the men responsible.

25th Reunion, Charles W. Turner, Chairman; *Reunion Secretary,* A. L. Hesselschwerdt; *Class Gift,* Ralph Davis, Ed Hubbard; *Class Book,* Ed Worden; *Program,* John Swanton; *Faculty Liaison and Institute Activities,* Gordon Brown; *Regional Representatives,* Henry Ahlberg; *Bar,* Hal Gurney; *Registration and Rooms,* Claude Machen; *Finance,* Helge Holst; *Fraternity Contact,* Gil Roddy; *Outing,* Russ Pierce; *Souvenir,* Bill Jacobs; *Transportation,* Al Dowden; *Photography,* Lou Hesselschwerdt; *Institute Tours and Speakers,* Gordon Brown; *Hotel Facilities;* Fred Damiano; *Catering Facilities;* Ray Jacques; *Music,* Mike White, *Statistician,* Eugene Branca; *Alumni Day Banquet,* Harry Schimmin; *Faculty Luncheon,* Art Fuller; *Pops Concert,* John Olsen; *Friday Night Dance,* Bob Martin; *Sunday Evening Program,* Ken Germeshausen; *Religious Services,* Bror Grondal; *Publicity,* Gordon Speedie.

Special Notes: Statistician, Eugene Branca says: "Even if you don't know about your plans for Reunion Weekend, mail your questionaire, or write for another. Statistics to date show few bachelors — to be sure of percentages we want answers from *every* member of the Class, married or single." Regional Representative chairman Henry Ahlberg says, "Let the wives get interested in Reunion Weekend now." — GORDON SPEEDIE, *Assistant Secretary,* 22 Harvard Ave., West Medford, Mass.

• 1932 •

The M.I.T. New York dinner "Science the Mighty Multiplier" given in honor of Karl Compton on January 4 must have been a memorable event. Your Secretary was due to be there but was grounded with bad weather. I've had good letters from Bill Kirkpatrick and Tom Sears reporting on it. Apparently the Class of '32 put in a good representation. Of the some 1500 guests, 27 of us were there, together with 25 graduate students, which is a pretty fair proportion. Bill took occasion to talk with several members of the Class of 1930 who had had their 25th Anniversary meeting last summer and reported they were all enthusiastic about staging the whole thing at Cambridge. Besides Tom and Bill, Chippy Chase, Johnny Lawrence, Bill Barker and others were among our Class luminaries present.

Al Mulliken has joined the staff of Chemical Specialties Manufacturers' Association as assistant secretary. The job is a new one, just created by the Association to serve the increasing needs of its members in the aerosol, automotive specialties, disinfectant and sanitizer, insecticide, soap detergents, sanitary products, floor wax and floor finishes industries. Al, as you know, has been for a number of years with Creamery Package of Chicago and most recently sales engineer from their Philadelphia office. His headquarters will be at 50 E. 41st Street, New York.

Johnny Lawrence has been made president and chief executive officer of Joy Manufacturing, the large makers of coal machinery and other industrial equipment. Congratulations to Johnny! John moved over to Joy from SKF Industries in 1951, where he had been manufacturing and engineering vice president. He served initially as vice-president, manufacturing and engineering, then a year and a half ago was made executive vice-president. Sitting on top of a company with $92 million in sales will give John every opportunity to use that famous Lawrence energy, for sure.

Another boost to important responsibility has come to Johnny Northup at Owens-Illinois Glass Co., Toledo. John has been made vice-president in charge of the Administrative Division and head of Administrative Services. John has been with Owens-Illinois since 1933. He managed the glass container plants at Charleston, West Va. and Clarion, Penna., and directed the company's corrugated box manufacturing operations before he was named director of engineering in 1953. Congratulations to John!

Johnny Crowther is in charge of sales of chlorinated products for Frontier Chemical in Wichita, Kansas. John had been with Stauffer Chemical for some time prior to that and I've enjoyed running into him from time to time in our mutual affairs.

After Tom Sears wrote me that he'd seen Gaynor Langsdorf at the Alumni Officers' meeting last fall I wrote Gaynor asking him to tell me something of his experiences in Iraq. Gaynor sent me an interesting report on his trip there, which is too detailed to record in these notes, but I thought the following comments in his letter would be interesting. "You requested that I tell you of some of my experiences in the Middle East. I think you might be interested in a side trip I made up to Baghdad, Iraq after I had finished my budget work in Dhahran, Saudi Arabia. Iraq is doing a tremendous job, in my opinion, of utilizing its oil revenues for building public works of a permanent nature. In fact, with the tremendous development now taking place in this country and which will continue at an ever-increasing rate, it might be an area in which you and your company would be interested in aiding the development on the chemical side. At any rate, it would certainly be worth taking a good hard look. I will be very much interested in your reactions after you have reviewed the attached." Anyone want to go over for a look at Iraq?

The Tom Westons just had their third child, Diane Lynn, born December 29. Tom still lives at 22 East Grove, Middleboro, Mass., working for a firm that makes desk calendars and has a large photographical business during the summer months.

Last month I mentioned Al Halper's progressive work in home building. I've just gotten a note that Al has won the 1955 National Association of Home Builders' competition for the Great Boston area with his Halper exhibit home in Wayside Acres, Sudbury. Congratulations to Al!

Ray Flege writes from Lubbock, Texas, 3404 Forty-First St., where he is director of Textile Research Laboratories and head of the department of Textile Engineering for the Texas Technological College, "The high plains of Texas of which Lubbock is the hub city are noted for the production of beef, oil, and irrigated, deep-well cotton, also the famous "Yellow Roses of Texas' ".

Angelo F. Ghiglione is Commissioner of Roads for Alaska, address 227-7th Street, Juneau, Alaska. He is a member of the Alaska Territorial Board of Engineering Examiners, Chairman of the ASCE Joint Committee on Snow, Ice and Permafrost, and past president of the ASCE Alaska Section.

Bill Hadley is Chief Industrial Engineer of the Pottstown Plant of the Firestone Tire and Rubber Company, Pottstown, Penna.

Captain Bob Hinners, USN, is Commanding Officer and Director of the U.S. Naval Radiological Defense Laboratory at San Francisco.

Charlie Dodson is assistant vice-president in the Petroleum Department of the First National City Bank of New York.

Kirk Horigian is general manager and owner of the Detroit Name Plate Etching Company, 13000 Capital Avenue, Detroit, Mich. Kirk is interested in Junior Achieve-

ment and Boy Scouts, among many outside interests.

Benedict Daly is analytical chemist for Boston.

Charlie Pierce, head of the district forecast staff of the Weather Bureau Station at Logan Airport in Boston, made the news recently in a feature article in the Boston *Globe*. Charlie apparently is one of our outstanding weather forecasters as he is called "the forecaster's forecaster". Charlie chose the Boston assignment over an alternative one offered him in Los Angeles because he thought Boston weather was so much more interesting! — ROBERT B. SEMPLE, *Secretary*, Box 111, Wyandotte, Mich. *Assistant Secretaries:* WILLIAM H. BARKER, 45 Meredith Drive, Cranston, R.I. ROLF ELIASSEN, Room 1-1-38, M.I.T., Cambridge 39, Mass.

• 1933 •

Your secretaries are frequently indebted to Calvin H. "Cal" Mohr for turning up bits of interesting information about various members of the Class. Cal reported recently on his own new position as assistant to the president of D. R. Sperry and Company, manufacturers of filters used primarily in the chemical industry. Cal's main duties concern the application, testing and development of filters. Cal reports of conversations with Andrew Regan who is in the purchasing department of Tennessee Eastman Corporation at Kingsport, Tenn. Cal also reports that Winfield Partridge is now in Texas City, Texas and that Alfred Munson is an engineer for the city of Chicago. We have also learned that Stanley Sapery recently started his own injection molding plant in the Bronx. The name of Stan's company is Augusta Plastics, Inc. In January, Gene Rohman attended an Industrial Liaison symposium in Cambridge set up for the purpose of discussing research budget control. Gene is chief of design for United Aircraft Corporation in East Hartford. We were grieved to hear of the death of William C. Miller in Los Angeles. Bill had suffered from gout for several years and was confined to a wheel chair. Bill's daughter is a junior at Stanford and his son is a freshman at UCLA. Robert L. "Bob" McCormack has just been named manager of the new "special tube division" at Raytheon with responsibility for all special-purpose type tubes including those for guided missiles, aircraft, radar, and other military and commercial application. — GEORGE HENNING, *Secretary*, 330 Belmont Avenue, Brooklyn 7, N.Y. R. M. KIMBALL, *Assistant Secretary*, Room 3-234, M.I.T., Cambridge, Mass.

• 1934 •

The Class is grateful for a letter from the widow of Sydney Nashner whose untimely death last August was noted in our December and March columns. Mrs. Nashner, who lives at 225 Kent Place Boulevard in Summit, N. J., enclosed a reprint of Sydney's paper taken from the July 1955 Canadian Mining and Metallurgical Bulletin which deals with the nickel refinery at Fort Saskatchewan, Alberta. His M.I.T. friends who see this paper will appreciate the high level of his professional attainment.

George Fowles has been loaned to Uncle Sam by B. F. Goodrich Chemical Company to serve as director of the chemical and rubber division, business and defense services administration. At Goodrich Chemical, George's job is sales manager of plastic materials, principally resins and plasticizers. He has been with Goodrich since before the war.

Charlie Feuchter has been appointed Manager of planning in the manufacturing department of The American Oil Company based in New York City, we are informed by a Company release.

Many thanks to Regional Secretary Jim Kendrick for the following items from the Los Angeles area. Quoting in part from Jim's letter — "Leo Kaplan, Course II fireball (red-headed, that is), is the proud owner of Turbo Products, Inc. in Pacoima, Calif. (between Burbank and San Fernando). During the past few years they have built up a good reputation in developing and fabricating parts for gas turbines and turbo jets. They have a well-equipped machine shop for precision work. Although they don't advertise, 90 per cent of their business comes from east of the Mississippi. Leo has just been invited to join the "Young Presidents Club," which consists of young men less than 40 years old who are presidents of their companies of more than 100 employees and have a volume of $1,000,000 per year or more. Leo enjoys inventing and developing new devices in addition to managing a very efficient shop.

"Lorimer C. (Larry) West, Course II, is one of the men behind the guns at Lockheed Aircraft Corporation because of his work as armaments group engineer on the new F-104 penetration fighter and other previous models such as the F-94, P-80 and P-38. He has been with Lockheed for almost 16 years, which is a mighty good example of patience and perseverance. Lives in North Hollywood with his wife and daughter, 10. You'd never guess by looking at and talking with Larry, who is very modest and unassuming, that he dreams up these death-dealing arrangements for which Lockheed is noted. I guess we all have some activities that don't show in our church register."

We also appreciate John Hawkins' thoughtfulness in sending the following note. "The other night at the mid-winter Alumni Meeting (Feb. 1 in Cambridge) we had those present from our Class sign up on the enclosed notice. Thought you might like to mention them in the Class Notes and tell the other local members it would be fun to see a larger group." Those attending the meeting were, Joseph Fishman, Irvin Gahm, Irving Geltman, John Hawkins, John Hitchcock, Art Miller, Henry Morss, Jr., Allan Mowatt'35, Roger Williams, Carl Wilson and Glen Woodbury.

Joe Bicknell reports seeing Melvin Sousa at an Air Force meeting at Wright Field in January. Mel is now with North American Aviation.

Also in January, this time in New York, your Secretary was pleased to meet John Borger and Ernie Greenwood at an M.I.T.-aeronautical dinner. John is worrying about jet transports for Pan American Airways. Ernie is with the Norden Company in Stratford, Conn.

We must report the death on last December 24 of Donald W. Taylor who received his Master's degree in Civil Engineering with us. He was Associate Professor of soil mechanics at the Institute. Professor Taylor had achieved a prominent position in his field. He had served as consultant and adviser to many professional groups, particularly those concerned with earth dams. He joined the M.I.T. staff in 1932 as a research assistant in soil mechanics in the Department of Civil and Sanitary Engineering. His promotion in 1934 to research associate was followed by successive appointments as assistant professor of soil mechanics in 1938, and in 1944, as associate professor of soil mechanics. He served as head of the Soil Mechanics Division from 1938 to the time of his death. In 1942 the Institute awarded him the degree of Master of Science, but he preferred affiliation with the Class of 1934.

Professor Taylor was active in the work of professional societies. A member of the Boston Society of Civil Engineers, he was chairman of the Committee on Subsoils of Boston for many years, and just prior to his death had been nominated for the Society's presidency. He was a member of the American Society of Civil Engineers, of the American Society for Engineering Education, and of the International Society of Soil Mechanics and Foundation Engineering, having served as International Secretary of the latter from 1948 to 1953.

His textbook, *Fundamentals of Soil Mechanics* is one of the leading texts in its field. He was author of numerous reports and technical papers, dealing primarily with the consolidation of clays, the shear strength of solid, and the stability of embankments. His paper, 'Stability of Earth Slopes' was awarded the Desmond-Fitzgerald Prize the highest annual award of the Boston Society of Civil Engineers. — WALTER MCKAY, *Secretary*, Room 33-213, M.I.T.

• 1935 •

Well, I missed another issue and I can see Bob Granberg grinning to himself. When I took over the Secretary's job last summer, he told me he would not miss one issue of the Review Notes — lucky for me, no bet!

On January 4, the Institute held a Compton Memorial Dinner at the Waldorf Astoria in New York. Unfortunately, I was unable to attend, but Jack Colby had our Classmates sign the program and send it along to me. The following are the fellows that were there: Charles D. Hanley, engineer for M. A. Treadwell Company, 140 Cedar Street, New York 6, N.Y.; Paul Cohen, Sperry Gyroscope Company, Great Neck, N.Y.; Thornet C. Dauphine, Hooker Electro-Chemical Company, Niagara Falls, N.Y.; Don Gittens, Vice-president, American Bosch Arma Corporation; Paul D. Germond, Secretary of Revolvator Company, North Bergen, N.J.; Ed Edgar, Gilbert Associates, Inc.; Ed, by the way, was leaving for a consultant job in Japan; Charles Bowen, Charlie is a partner in the firm of Booz, Allen and Hamilton, N.Y.C. He lives in Greenwich, Conn. with his wife Hope and their three children, Geoffrey, Carla, and Debbie, and you can tell by his address that his hobby is sailing;

Bernie Nelson – he tells me he's talked with Ken Holdom who is now living in New Jersey and recently received a letter from Carl Lavenas who is back in this country again in Kansas City and expects to be in New York this spring; Don Taylor, Bethlehem Steel Corporation, N.Y.; Jack Staunton, Supervising Engineer of Seelye, Stevenson, Value, and Knecht, 101 Park Avenue, N.Y.C.; George Knapp, Chief Engineer, Servomechanisms, Westbury, N.Y.; Ed Hoffman, Superior Chemical Products, Inc., Philadelphia, Penna.; Gerhardt N. Patitz, Manager of the Fleischmann Distilling Corporation, N.Y.C. He lives with his wife, Carol, and their three children, Marcia, Karen, and Warren at 1601 Maple Ave., Peekskill, N.Y.; our perennial bachelor, Randy Antonsen, and Bev Dudley, Editor of the Review.

Lou Packard has recently opened a new building for the Acton Laboratories, Inc. in Acton, Mass. This company, founded in 1954, is an engineering outgrowth of the parent company, Lou's Technology Instrument Corporation. The plant is designed and equipped to keep pace with the fast-moving technological progress.

Allan Q. Mowatt is sales manager of the Atlas E-E Corporation in Bedford, Mass.; Du Pont Company recently announced that Dr. James W. Libby, Jr. was advanced to division head of the Du Pont Development Department. Jim was born and brought up in Swampscott and obtained his Ph.D. in 1938, after graduating with our Class in Course X. He is now living with his wife and three children in Horseshoe Hill, Hockessin, Del.

Henry J. Ogorzaly is now assigned to study the firm's nuclear activities in the petroleum field for the Esso Company. He has been with the Esso Research Laboratories since 1937 and is now living at 30 Tulip St., Summit, N.J.; Wesley H. Loomis, III recently integrated the Loomis Advertising Company with the General Telephone Directory Company, N.Y.C. and was elected president. Though he is now living in Kansas City with his wife and three children, he will soon move to Chicago. Wes, who was always active in our Class, has been extremely active in civic affairs in Kansas City.

In Memorium – I regret to note the passing of Oscar E. Eckblom of 30 Fairlee Road, W. Hartford, Conn. He passed away last December in St. Francis Hospital after a long illness. Oscar was partner and tool engineer of the Industrial Design Service. He was a member of the American Society of Tool Engineers; a member of the board of deacons of Emanuel Lutheran Church; and a member of the council of Boy Scout Troop 29.

He leaves his wife, Dorothy Johnson Eckblom; a son, Carl Waldo Eckblom; and a daughter, Christine A. Eckblom. – FRANCIS W. MULDOWNEY, JR., *Secretary,* 1109 Boylston St., Chestnut Hill, Mass.

• 1936 •

During the intervening months, the 1936 Reunion Committee, under the direction of Tony Hittl in New York City, has been continuously busy. At the January meeting the results of the recent mailing to members of the Class brought out that at that early time, 49 had made reservations for the Reunion. Also, 7 others indicated that they "hoped" to come. Most of those registering intend to bring their wives. The concensus was that this was a good start and that the list indicated that we would certainly have a Gala Reunion from the standpoint of attendance. The Committee indicated its intention to have the rest of the arrangements match the fine turnout, which is now indicated. Inasmuch as Weekapaug Inn is limited to about 125 people, it was evident that a full quota would be on hand as a nucleus. Reservations are being taken in the order of receipt of the $10 deposit. The following is a list of those who have made reservations and have sent in deposits as well as those who "hope" to come: Oliver L. Angevine, Jr., Frederick F. Assman, John C. Austin, Aldo Bagnulo, James G. Baker, John Bete, David Blanton, Joseph E. Burns, C. Douglas Cairns, Arthur A. Carota, Benjamin Cooperstein, Richard A. Denton, Vincent T. Estabrook, Harry E. Essley, Jr., William Fingerle, Harry R. Foster, Webster H. Francis, Jr., W. W. Garth, Jr., Robert S. Gillette, Bernard B. Gordon, C. Mallory Graves, Alwyn B. Gray, Eli A. Grossman, Harry B. Hazelton, John F. Healy, A. E. Hittl, Marshall M. Holcombe, William H. Hope, S. T. Johnson, Thomas L. Johnson, Jr., Larry Kanters, Richard K. Koegler, Elwood H. Koontz, James H. Leary, Francis H. Lessard, Henry F. Lippitt, II, Loreto Lombardi, Brenton W. Lowe, August Mackro, F. David Mathias, Harold F. Miller, Paul S. Morgan, Franklin Parker, James F. Patterson, Lawrence G. Peterson, G. Elliott Robinson, Morgan C. Rulon, Dorian Shainin, M. B. Spaulding, Jr., Gordon C. Thomas, Fletcher P. Thornton, Jr., George S. Trimble, Jr., David E. Varner, H. A. Weaver, Pyam W. Williams, Robert E. Worden.

In spite of this high early listing, spots are still available upon writing to Mal Holcombe for a *personally* signed registration certificate and enclosing $10 (Marshall M. Holcombe, 2100 Paxton Avenue, Harrisburg, Penna.).

In addition to Tony Hittl as Reunion Committee Chairman, officers for the Reunion Committee have been selected to include: Secretary, Hank Lippitt; Publicity Committee, Jim Leary; Finance Committee, Mal Holcombe; Arrangements Committee, Py Williams; Program Committee, Eli Grossman. Messrs. Thornton and Thomas unselfishly volunteered the services of their wives to serve on a Wives Committee to give the proceedings a feminine viewpoint!

The plans are still to have the Reunion at Weekapaug Inn near Westerly, R.I. (on the main train and highway route between New York and Boston, subject to the Inn's being open at that time. (The dates are Friday evening, Saturday, Sunday, June 8-10, or any portion thereof – Ed.)

Word comes from Brock McMillan in his capacity as assistant director systems engineering of the Bell Telephone Labs at 463 West Street, New York 14, N.Y. After getting a Ph.D. in 1939, no less, Brock married another mathematician, Audrey Wishard (Northwestern & Radcliffe) in 1942 and they now have three children, Sarah, 1946, Douglas, 1947 and Gordon, 1952. During World War II, Brock was on active duty in the Navy, 1943-1946, first at the U.S. Naval Proving Ground, Pahlgren, Va., and later, Los Alamos, New Mexico where he worked with the Manhattan District of the Corps of Engineers developing the atomic bomb. At present Brock is just a handy-man around the local PTA, but still finding time to publish occasional publications in statistics, electrical network theory. He also writes to say he is planning a business vacation trip to Germany, Switzerland, Scandinavia (kids and all)! in late spring '56.

Aldo Bagnulo, who turned up at the M.I.T. Dinner, "Science the Mighty Multiplier", (New York, January) resplendent in full dress uniform as Colonel, Corps of Engineers, gives us a line on his work in the Eastern Ocean District. Last fall, upon completion of a tour of duty in Iceland where Aldo was in immediate charge of military construction, he was assigned to the Corps of Engineers, Eastern Ocean District located in New York City where his job is that of assistant district engineer. In this office Aldo and his staff do the engineering, and award and administer contracts for construction in an extensive overseas area which includes Greenland, Newfoundland, Labrador, Canada, Iceland, Bermuda and the Azores. Aldo was married in 1944 to Helen Montesinos and has four children, Michael, 1945; Robert, 1948; John, 1949; Joseph, 1953. Aldo is one of the few in the Class that has made the Army a career. He entered the Army shortly after graduation in 1936 and has been in the service since then, with a stint back at M.I.T. in 1947-1948 when he got his S.M. in Civil Engineering.

Bob Worden writes to say that he seldom sees any of our Classmates these days, His schedule is so heavy that perforce he devotes his free time to his family on an occasional extracurricular hobby or interest. As for work, Bob says that Worden and Risberg continues to grow. Bob's firm has just completed its first ten years as a firm, during which period every year has been better than the one before. Bob's family consists of four children, the oldest of whom is a boy, 16; the others are girls, ranging from 14 to 8. About the only other thing Bob adds is that while he feels good, he looks a little older – less hair, and what there is left is all gray. (No more so than other class members. – Ed.)

Tony Hittl mentions that at the M.I.T. Dinner in New York he had a conversation with Fred Assman. Fred is a chemical engineer with the Thiokol Corporation in Trenton, N.J., where he has been doing various types of work including plant layouts, pilot plants, economic studies, etc. He has been married for the past 8-10 years and he and his wife are expecting their first baby this June. Consequently, his plans for attending the Reunion are somewhat indefinite. Fred and his wife now live in Hopewell, N.J. and plan to move before June to a home they are purchasing in Trenton.

Reports come from Compressed Gas Association's Annual Banquet about Wally Sylvester. He is working for the Walter Kidde Company in an engineering capacity.

A "poor man's radar" to help pilots avoid thunderstorms was described in

January at the meeting of the American Meteorological Society. The idea came to Barney Vonnegut, one of the originators of cloud seeding to produce rain and snow, while studying thunderstorms and atmospheric electricity. The electricity project, sponsored by the Office of Naval Research, is being carried out by Arthur D. Little, Inc., research consultants, of Cambridge, Mass.

If the turbulence in thunderstorms is evidenced by electrical charge centers, he thought, it should be simple to record this from either end of an airplane. If the front of the plane showed a charge, it would indicate that the plane was headed toward such a storm. In the same way, a charge from the rear would indicate a course away from the turbulence and a zero recording a course at right angles to it, he theorized.

Probes at either end of the plane, or possibly a trailing wire at the tail, would be connected to a microammeter to record the voltage differences.

This was tried last summer in flights in Massachusetts and Nebraska. Yesterday's report said that "preliminary tests indicate this equipment may aid in navigating around storm centers." Radar equipment in use in commercial aircraft shows the concentration of water in the clouds, rather than electrical charge centers. Barney is not saying that the new device is better than radar but that its weight and cost are negligible by comparison.

An article in the January 1956 Fortune magazine on "Industrial Research: Geniuses Now Welcome" tells about Glenn L. Martin's newly elected vice-president, George S. Trimble, talking about Martin's new subsidiary RIAS, Inc. RIAS, Inc. (which stands for Research Institute for Advanced Study), is based on one of George's ideas that there was a need for research work in the organization "devoted exclusively to the discovery of new scientific knowledge beyond product application." One of RIAS first objectives is to make a thorough restudy of gravity (which seems to have a fairly close relationship to at least some airplane problems). What else RIAS will produce, besides tax deductions, George didn't get to the last Reunion Committee meeting to tell us. — HENRY F. LIPPITT, 2ND, *Secretary*, 30 Rockefeller Plaza, New York 20, N.Y.

• 1938 •

If any of you wish to get out of the rut you're in, you might get in touch with Ralph Slutz. He writes: "I'm working now in radio wave propagation for the National Bureau of Standards. This fall I attended meetings in Brussells of the Special Committee for the International Geophysical Year, and then visited laboratories in England, France, Netherlands, Norway, and Germany. We are looking for people to man observing stations on the Antarctic Continent for the International Geophysical Year."

Chauncey Bell says: "After 16½ years with Martin Company in Baltimore am moving up and on to Logistics Department of Rand Corporation, in Santa Monica, Calif. Family will follow as soon as house is sold. Jim Emery recently moved to Baltimore, so replaces me."

Ira Lohman has been named: "Manager of Customer Relations at the IBM Military Products Division, Endicott, N.Y. He became a member of the IBM organization at Endicott in September 1951 as a technical engineer and two years later was named project engineer in Defense Development Engineering. Early in 1953 he was appointed assistant development engineer in Defense Development Engineering and subsequently was appointed Development Engineer."

Ray Popkin has had some favorable publicity recently. One news item states: "After the disclosure that Telechrome had developed a color set, with the Lawrence tube, of high technical standards and yet easy to assemble, align, and service, the firm was beseiged with callers. J. Raymond Popkin, noted engineer who heads the firm said: 'We got about 100 calls from people who wanted to buy stock in Telechrome and then we were inundated with calls from people who wanted to see the set and wanted to know where they could buy it.' He invited a 'delegation' in to see it and they 'were all favorably impressed.' The set, which will sell for under $400 is expected to be demonstrated to the industry this month, by Chromatic Television Laboratories, Inc. the research and development company that produced the Lawrence tube." — D. E. ACKER, *Secretary*, Arthur D. Little, Inc., 30 Memorial Drive, Cambridge, Mass.

• 1939 •

Since last writing the travel news has increased. Sid Silber, 7002 Reisterstown Road, Baltimore, Md. writes: "Jean and I are about to leave on a month's trip to Europe starting this afternoon (Jan. 20, 1956). Business has been frantic. We now operate 17 retail stores and are about to open three more in the next six months to a year." Sid operates a bakery business and I can report that his fruit cakes are out of this world. If he learns how to make an apple strudel on his European junket a lot of us will want to sample it.

Lucile and Bill Brewster announce a new arrival and potential alumnus for M.I.T. Class of '72. Lucile wrote, "As you can see we have adopted a baby boy — blond with a crew-cut, and big blue eyes. Just returned from a 6-weeks' trip to South America — Brazil, Argentina, Chile, Peru — Bill's first as assistant vice-president of United Shoe." Lucille and Bill are at home at Wellsbrook, Plymouth, Mass.

Received a nice card from Lawrie Fabens, Jr. who can be reached via 379 Bradley Road, Bay Village, Ohio. The card had pictures of his very handsome family. The eldest of four men in the picture looked like Lawrie as a freshman and not like what I believe he should resemble at the fat and forty stage which we are all in these days. So, Lawrie, another note is in order to explain how you do it and let all the rest of the gang know what has happened to you these years.

From Dodie and Bob Casselman came a letter with a wonderful and light touch. It was just so good that I'll extract most of it for you here. To give you some background, Bob developed some sort of "Achilles Heel" which combined last year with a sixteen-year's-delayed hangover from some of his own Phi Gam Cowboy Party Punch. Surgery was required. Dodie wrote: "Otherwise 1955 was a wonderful year for the whole Casselman tribe. High spot, perhaps, was the acquisition of a sailing yacht and the development of several Fearless Navigators. The boat, by name The Pipsqueak, measures a generous 13 feet 6 inches overall, and (according to its detractors) about the same in beam. It is a Beetle-cat type boat and is able to get into the same kind of trouble and cause the same kind of panic among skipper and crew that even larger yachts are capable of. We spent the summer at Cataumet on Cape Cod teaching the Pipsqueak how to behave, with mixed results.

"The kids are wonderful and loads of fun. Margy, at 14, is as typical a young teener as can be imagined with the bones of the hand gradually deforming into a permanent cradle for a telephone receiver. Carl at 11½ is blooming in sports and books in 6th grade, and on the side blows a really-not-bad trumpet. Teddy is the 8-year-old artiste, genuinely enjoying drawing, painting, semantics and (he claims) second grade females. Fritz (6½) is Mr. Bounce all over, full of smiles and surprises as he not infrequently outdoes his elder brothers."

Bob himself wrote the postscript to the letter: *"Clinical Supplement:* The erudite name for my operation is thromboendarterectomy, which means removal of a plug of sorts that developed at the lower end of the aorta, which is the main hose leading from the heart. The operation is done through a 12 inch incision in the abdomen running approximately from stem to stern. The artery is reamed out just the way a Roto-Rooter works on a clogged pipe, but at much fancier prices."

And now as the sun sinks slowly into the west and a rosy glow tells us that day is done, the invitation goes again to all you readers in the East to drop a note to me. Your friends will be just as interested hearing about you as you are in reading these notes. Incidentally, after reading Dodie's greetings I believe the ladies have some hidden talents. And before someone starts to make something of this comment let's close by saying that the ladies' letters will be welcomed, extracted, and published. — HAL SEYKOTA, *Assistant Secretary*, 416 Calle Mayor, Redondo Beach, Calif.

• 1940 •

Recently, your secretary had the pleasure of a phone call from Russ Winslow, who is a flight-test engineer with Boeing in Seattle, Wash. Russ has tested planes up to jet transports. He has three boys who are 6, 9 and 11 years old and who make a good crew for his lightening class sailboat. Russ also advised that Reeve Morehouse is with Crown-Zellerbach in an industrial engineer capacity and moved to Los Angeles about a year ago. Reeve is also a proud father of five children including twins, born about the time of his transfer to Los Angeles. Oliver Fulton has been named assistant to the president of the Underwood Corporation the large business machine manufacturers. Claude Shannon, who is a research mathematician with the Bell Labs, has been appointed visiting professor of electrical communica-

tions at the Institute for the Spring term. Claude will be associated with the Department of Electrical Engineering and will teach an advanced course on information theory based on his recent Bell Labs' research work. He is the holder of the Alfred Nobel Prize of the American Institute of Electrical Engineers, the Norris Liebman Award of the Institute of Radio Engineers and the Stuart Ballantine Medal of the Franklin Institute, as well as the recipient of an honorary degree from Yale. The Institute is indeed fortunate in having the return of one of its illustrious Alumni. — ALVIN GUTTAG, *Secretary,* c/o Cushman, Darby and Cushman, American Security Bldg., Washington 5, D.C.

• 1941 •

JUNE IS NEARER THAN YOU REALIZE! SIGN UP FOR THE 15TH REUNION AT PLYMOUTH NOW!

The Reunion Committee is hard at work organizing the events of the big weekend of June 8, 9, and 10. By now, all of you should have been contacted; if you have not received the mailings, please let me know immediately. The program now lines up something like this: Friday evening, Professor Klaus Liepmann of the Department of Humanities at M.I.T. will provide a program of music; Saturday noon, weather permitting, we enjoy a clambake, real New England style; Saturday afternoon, softball game (Red Sox scouts to be on hand); Saturday evening, cocktail party, banquet, and dancing. Sunday, informal activities, church, sight-seeing, and general visiting and bull sessions. Sports, including golf, tennis, and others, will be available both days for those so inclined, under the able direction of Johnny Sexton. Monday will be Alumni Day at M.I.T., which is to be an all-campus affair this year, with the Alumni Banquet to include wives, and to be held in Rockwell Cage. Any of you who can possibly stay over should certainly do so, for a fitting finale to a grand weekend. Where's Rockwell Cage, I can hear some asking. Come to Cambridge and see!

We have been most fortunate in having Professor Liepmann agree to join us for our Friday evening program; he is well known in both Europe and the United States as a violinist, conductor, and concertmaster. Having studied at the Conservatory of Cologne, he served as concertmaster of the Conservatory of Music at Hamburg, the Academy of Music at Cologne, and the Berlin University Orchestra. More recently, he has been on the Yale faculty and was the director of the Yale Symphony Orchestra. He has led the Boston Symphony Orchestra, and has written a book on music appreciation which is being very well received. We are looking forward to having him with us.

The following men (nearly all with wives) have signed up as of today (February 10): Zach Abuza, Everett Ackerson, Bill Ahrendt, Bob Alfred, John Andersen, Hank Avery, Ed Beaupre, Bob Blake (Washington, D. C.), Rog Blum, Bill Bowes, Joe Bowman, Ivor Collins, Chet Corney, Syd Cramer, Bob Demartini, Joe Dietzgen, John England, George Farnell, Ted Ferris, Rog Finch, Sam Fry, Herm Gabel, Joe Gavin, Carl Goodwin, Les Gott, Ray Harper, Luke Hayden, Bill Hooper, Ralph Hunt, Erling Hustvedt, Dave Howard, Luis Jiminez, Paul Joyce, Walt Keith, Warner Knight, John Macleod, Mitch Marcus, Ed Marden, Sam McCauley, Milt McGuire, Dave McNally, Bob Meier, Earl Meyers, Warren Meyers, Joe Myers, Herb Moody, Howie Morrison, Will Mott, Carl Mueller, John Murdock, Harvey Pofcher, Roger Robertson, Howie Samuels, Max Schweinshaut, John Sexton, Dave Shapiro, Ed Sherburne, Bob Smith, Pete Smolka, Irv Stein, John Stern, Frank Storm, Alan Surosky, Stan Tirrell, Ken Tsunoda, Walt Turansky, George Vineyard, Teddy Walkowicz, John Waller, Reid Weedon, Art Weinberger, Ed Weinberger, and Bob Williams.

IF YOU HAVE NOT YET SIGNED UP FOR THE REUNION, DO IT NOW! — IVOR W. COLLINS, *Secretary,* 28 Sherman Road, Wakefield, Mass.

• 1942 •

My requests for news and views bring forth much appreciated responses — witness this from Ed Thode: "Your recent plea for current vital statistics bestirred me in the Ivory Tower sufficiently to take pen in hand and inscribe those concerning the Thodes for you:

"Isobel and I have been married lo these many years — twelve come May — and now have three children. Karen is seven, Stephen is four and Jonathan is three and one-half months. The middle names of the children are Elizabeth, Frederick and Edward, respectively. (Now don't go around saying we have six kids!).

"Since completing my graduate program at M.I.T. in '47 I have been mostly in academic work, for seven years at the University of Maine. Recently I joined the staff of The Institute of Paper Chemistry, Appleton, as a Research Associate. In between there was a short stint (a sabbatical you might say) with the 3M Company in St. Paul. As you may know, The Institute of Paper Chemistry is a graduate school and research institution devoted to the scientific and technical problems of our fifth largest industry. I find the combination of graduate teaching and research much to my liking. On a small scale I.P.C. is much like M.I.T.

"I'm afraid my vocational and personal activities have not been such as to make colorful copy. As a result of some puttering around the lab on my part and on the part of associates and students, I have managed to get my name in print as the author of technical papers some dozen or 15 times. I have had a modest part in the affairs of various professional, fraternal and church organizations. All in all it has been a rather Babbitt type of existence, but for one thing — so far I have not got myself in a rut and have devoted much energy to helping my fellow 'Babbitts' from becoming mired in complacency. One is not always thanked for such efforts, but pursuing such a course does add a bit of zest to life. While meditating in the Sinclair Lewis vein (or maybe it's a Philip Wylie vein) may I venture the comment to the next Reunion committee that the Class questionaire might do with just a bit less Babbittry than the last one? I rather favor waiting for the 25th, then soliciting short autobiographies." Thanks, Ed, for the highly spiced resume. We should appreciate further comments on the place of statistics in our quintennial reporting.

In the way of promotions Jack Sheets has been appointed by M.I.T. as its Executive Secretary for Development. More news about Jack's astivities and plans in later issues of the Review. Also in the process of moving up is Curtis D. Buford of the New York Central Railroad. Curt is now the assistant general manager of the Cleveland District. He has been with the NYCRR since 1946. At that time he was appointed a traveling car agent. His successive positions were assistant trainmaster, assistant to a vice-president in New York in 1948, trainmaster in Buffalo in 1950, then Indianapolis, Erie, and Watertown, N.Y. In 1954 he was in Chicago and his last assignment was in New York.

There was quite an article in *Sales Management* magazine about Ken Leghorn and his dramatization of collapsible tubes. The tube out of which you squeeze your toothpaste, outdoor grille fire starter, weatherstrip adhesive, artist colorant, or special salve may well have started as a challenge to Ken, "You've got some wonderful ideas and tubes, but you can't put *our* product in a tube!" He not only relishes the dare but also actively looks everywhere for such opportunities. One of his approaches, as president of Sun Tube Corporation, is to send out each month to clients and prospective clients, in an attractively packaged box, a nationally known product in one of his company's tubes. Each of these has been carefully designed for size, shape, type of cap, artwork, etc. to demonstrate that packaging is a very large factor in selling. If you have a problem, write to Ken in Hillside, N.J.

Among the honors this month is the selection of Charles H. Smith, Jr. as one of the Ten Outstanding Young Men of 1955 by the Junior Chamber of Commerce. Specifically mentioned in the citation was Chuck's work as a pioneer in labor-management relations concepts as well as his leadership in a multitude of Cleveland community programs. In addition to his many activities previously mentioned in these columns we now record his 1953 service as advisor to the U.S. employer delegate with the International Labor Conference in Geneva, and his membership in President Eisenhower's Committee on Manpower Resources for National Security. He is not only the president of the Steel Improvement and Forge Company, but is also National vice-president of the Drop Forging Association, director of Omnicoil Enterprises, Inc., trustee of The Air Foundation, and a director of the Akron-Cleveland Institute of Aero Sciences.

Quite an impressive delegation of '42 men were on hand for the New York dinner tribute to the work and memory of Dr. Compton. A photographer was corralled and a handsome picture was taken of our distinguished classmates. Harvey Kram arranged for offset prints for all who were present. If you were there and have not received yours, or missed the

occasion and would like to have a memento please write to Harvey at Leviton Manufacturing Company, 236 Greenpoint Ave., Brooklyn 22, N.Y.

This past month Ray O. Wyland, Jr. did a bit of moving – from Mt. Prospect, Ill., to La Canada, Calif. The Class of '42 is having a "get together" on Thursday, April 12 at the M.I.T. Club of New York, Hotel Chatham, Vanderbilt Ave. and 48th Street. Time is 5 p.m. For further details call or write Harvey Kram, Chairman, EVergreen 9-4500, 236 Greenpoint Ave., Brooklyn 22, N. Y. – Lou Rosenblum, *Secretary,* Photon, Inc., 58 Charles St., Cambridge 41, Mass.

• 1943 •

It is with sincere regrets that your secretary reports the death of two of our Classmates. James F. Jarman died in France on January 8, 1956, as the result of injuries suffered in an automobile accident on January 1. He was making a holiday visit to Seth Bransby, Class of 1944, who was an SAE fraternity brother, and who was also reported killed in the accident. At the time of his death Jarman was president and director of Delman's Inc. of New York, manufacturers and distributors of women's shoes, a division of General Shoe. He was also a director of I. Miller and Sons Inc. and of Ted Saval Inc., women's shoe manufacturers of New York. He was assistant treasurer of General Shoe Corporation. Following graduation he served as a Lieutenant in the U.S. Navy, and had been with General Shoe since his discharge in 1946. He is survived by his mother, and his brother and sister, of Nashville, Tennessee.

Haven Gibson Fifield, Production Manager of the heat pump division of the General Electric Company, Bloomfield, N.J., died of a heart attack in Montclair on January 18, 1956. He had been with General Electric since his separation from duty as a Navy lieutenant. He was a graduate of Bowdoin College, where he was elected to Phi Beta Kappa, and he received his degree in Mechanical Engineering with our Class. The Class sends its sympathy to the families of these two men, whose untimely deaths were a heartfelt loss to all.

From Philadelphia we have news of the birth of Loring Frederick Hosley, 3rd, son of "Hap" and Ellen Hosley, on August 12, 1955. The Hosleys also have a daughter, MaryLu, age 4. Newton I. Steers, President of the Atomic Development Mutual Fund, and a graduate student with our Class, recently addressed investment men in Cleveland on "How You Can Share in the Growth of Atomic Energy." He was with the Atomic Energy Commission from 1951 to 1953, and founded the Mutual Fund in 1953.

Change of address notifications show that Al Bakker is with The Reuben H. Donnelley Corporation in Buffalo, N.Y.; Lindsay Fletcher has returned from Japan and is now in San Mateo, Calif.; Greg Gagarian is now in New Haven, Conn., with The Safety Car Heating and Lighting Company; Ward Haas moved from Indiana to Bronxville, N.Y.; Ed McClaud moved back to West Hartford from Virginia; Maurice Obregon moved to Caracas, Venezuela from Bogota, Colombia; Ted Sadowski is back in Dorchester, Mass., after a few years in San Antonio, Texas; Bill Selke is now with Peter J. Schweitzer in Lee, Mass.; and Dick Zeamer has moved from Wisconsin to Westernport, Md. – Richard M. Feingold, *Secretary,* 49 Pearl Street, Hartford 3, Conn.

• 1945 •

When we last sat down to write Class Notes never did we think it would be early February when we again found time for this enjoyable task. Never did I realize that the purchase of a 15-year old house here in Stamford, Conn. would result in such full weekends of endless chores. Fran has kept my nose to the grindstone but enough of these excuses and on with the news!

On Saturday, June 11, 1955 a formal Class meeting was held with Prexy Chick Street presiding. Tom Hewson, as Reunion Committee Treasurer, gave a resume of the financial picture after which it was decided, by secret ballot, of course, that the Class officers could dip into the till to meet Reunion expenses – it was not necessary because the 10th Reunion was self-sustaining. It was then decided to have the president appoint a committee to cut down the Class rolls from some 900 to between 200 and 300. With the help of Chick Kane and the Alumni Fund Office we received a listing of 472 individuals who have at some time or other contributed to the Alumni Fund. This list shall constitute a so-called nucleus but will be further subdivided as follows:

1 – Approximately 220 "actives" which is made up of '45 graduates who have shown an interest in the Class and Fund plus a few people that are associated with another graduating Class but want to be included in 45 activities.

2 – Approximately 60 "inactive" graduates that have shown no interest in Class activities since graduation.

3 – Students that attended as graduate students only.

4 – Government war students. The remaining 450 members of our Class have been struck from the rolls as far as your committee is concerned.

After a lengthy discussion of Alumni Fund contributions 25 year gift, etc., it was decided that we should collect nominal Class dues each year. One decision was reached at the Class meeting and subsequent discussion indicated we would not develop sufficient revenue. Therefore, at a later executive session it was unanimously decided that Class dues would be $2.00 per annum payable either annually or every five years. Rather than invest our funds all of $400 at present) in Massachusetts Savings Fund it was decided to turn over our money to the Alumni Fund which will guarantee us 4 per cent on our money. The meeting closed with Dave Trageser and yours truly being elected President and Secretary for the next five years, respectively.

Following the practice instituted by the Class of 1944 we had Reunion attendees complete a rather informal questionnaire which would produce a few chuckles instead of statistical data. The husbands and wives completed different questionnaires although the questions on each questionnaire had a direct bearing as you shall see. The first question was an embarrassing one in that it had to do with one's weight. Less than 20 percent of the girls answered this question while 100 percent of the fellows came through. The boys had gained an average of 25 pounds since marriage while the few girls that answered admitted to 32 pounds. Most everyone has a television set and as you might expect the girls watch TV twice as much as the men – now you know why the housework is not finished when you get home for dinner. The wives' minds were divided as to whether their husbands worked too hard or not while it was interesting to learn that most of us commute an average of 20 miles to and from our livelihood. One fellow has a 120 mile round trip each day. Did you realize that three fellows attending the Reunion wore arch supports, most wore glasses, eight wore vests, and almost all enjoyed their hats? One of our "arch supporters" has kept it a closely guarded secret for his wife was unaware of the situation. The most children for those attending the Reunion was four while the average was almost three. What a prolific group! One of the mothers having four children (one set of twins) thought two kids would make an ideal family while her husband has his goal set at eight; it will be interesting to see how many more will arrive during the next five years.

When it comes to the care of children all we can say is long live the mothers! The gals change approximately 100 diapers a week and answer all the night calls while the men folk claim they change "several" diapers and answer about "half" the night calls. Our fellow Classmates are fairly good about staying home nights for they average only 2 or 3 nights out a week. Most of the wives feel their husbands' salaries keep them in a manner to which they have become accustomed while only half feel that their man makes enough money. On the other side of the ledger two thirds of the boys feel that they are not reimbursed commensurate with their abilities and, further, only 60 percent feel that their wives live within their husbands' income. The girls, in general, are well satisfied with the chores that their "do it yourself" husbands perform about the house. Most of us enjoy suburban living but no one has the suburban status that Bill Blitzer claims! Bill works in Jersey City and sincerely feels he is a suburbanite since he commutes from Greenwich Village in New York City each day. To summarize the results of the questionnaires, one might say that things, in general, are good but could be better; all in all, everyone attending seemed to be enjoying life.

It was most thoughtful of you who chose to write a brief note last spring explaining why you could not attend your 10th Reunion. George "Curly" Bickford could not make it because of an "almost due" situation together with the fact that he was moving into a new home. In fact, one Classmate Chris Boland moved that very weekend. Joe Aguila of Caracas, Venezuela wished the Reunion were being held in July for he expected to be in Boston at that time. We later heard from Chick Street that Joe did arrive, further

he still made the best daiquiri this side of Cuba. Pam Elmendorf was indeed sorry she and Ray would be unable to come for Standard Oil of New Jersey had Ray shipped off to Arabia for a brief (a year!) sojourn. Tom Markey wrote from St. Louis the Reunion weekend crying the blues! Soon after his marriage, Merck and Company transferred him from Jersey to St. Louis and the "bride" was left behind to sell their new house. Tom sent his best to all especially Walt Borden and Julian Gammon. Abe Fletcher now up at the Bath Iron Works reported that he was to attend a Student House meeting; much to my surprise Abe said that about 100 former student house residents had bought the house to assist needy students in their struggle to make ends meet on their journey through M.I.T.

Not much news from the news services but here's what there is. Congratulations to Bill Blitzer! Bill has recently been elected vice-president of Lightolier, Inc. to head product development. By error we were forwarded a news clipping indicating the retirement of Ralph M. Ferry as manager of the Tennessee Operations of ALCOA: Thomas I. Stephenson, Jr. was named the new manager. Yes, Mr. Stephenson is our little Steve's father — possibly this error on the part of the news service is an omen of things to come as far as Steve is concerned. Anthony R. Tancreto of Arlington, Mass. served in the Boston office of the U. S. Weather Bureau as "the storm swell specialist." Tony forecasted the high waters, etc., connected with last year's various New England storms. In mid December, James C. Cochran, an old XIII C Naval Officer, joined Atomics International, a division of North American Aviation, Los Angeles as Assistant Project Engineer on the Sodium Reactor Experiment — a nuclear power reactor to be used in the AEC's program to develop competitive electrical power from atomic energy. Previously, Jim headed the Navy's Nuclear Components Group which approved design, development and testing of machinery components used in the radioactive systems of nuclear powered ships.

Your Class was represented at the First Alumni Officers Conference last September 9 and 10 by Prexy Dave Trageser, Alumni Council representative, Tom Hewson, Class Agent, Al Oxenham and myself. You all have read previously of this fine meeting so there appears to be no need of repetition. Familiar names attending were: Dick Mooney, Art Schwartz and John Reid, formerly of 45 but now of 47 and 48 as well as Jim Craig and Don Herter of 46, and Scotty Carpenter "44." Scotty and I roomed together at Baker House and, believe me, Scotty is still the same old lovable piano player. The Class of 1945 was well represented at January 4 dinner in New York's Waldorf Astoria: Due to poor flying weather not all were able to attend. Those in attendance were: Samuel M. Morse, III still at the U. S. Coast Guard Office in NYC, Sandy Neuhaus of Orange, N. J., Chris Boland of Old Greenwich and the Market Development Department of National Distilleries, Edwin Chung, a self-employed manufacturer of printer's ink, Tom Hewson of Boston and St. Regis Paper Company, Maxie Ruehrmund still with General Foods Baker Cocoanut Division, Thornton Smith of Kuhn, Smith and Harris, New York building contractors, Isay Stemp, Assistant Director of Research at J. A. Deknatel, Inc., surgical manufacturers, and myself. Unable to attend were: Bill Loeb, Don Ostrower, John Plantinga and Tom Hood.

Fran and I were most disappointed not to see Nick Mumford when he was in New York, October 15 — the weekend of the Connecticut floods. Unfortunately, there was no train service between Stamford and New York; with two feet of water in the cellar we had things to do at home! Two Sundays later, however, Dame Fortune smiled brightly for I found Nick and Jake Freiberger greeting me at Love Field in Dallas, Texas. Needless to say, a merry afternoon and evening was had by all reminiscing and re-living our college days. Nick and Rosemary have four wonderful children — Elizabeth, Ayliffe, Robin and Nicky in ascending order. Nick heads up a research and development group at Chance Vought with whom he has been employed since graduate school. Nick's work is hush hush and should you desire to know what he is doing now he will tell you some four years hence. Jake is still much the same, has a charming wife Katherine, and two children, Jake, Jr. and Kate. Since school Jake has more or less divided his time between Syracuse, New York and Dallas with a couple of European trips sandwiched in between. Jake's family have sold their interest in Prosperity, Inc. — the Syracuse laundry equipment manufacturer so all of Jake's time is now being devoted to Stiers Laundry in Dallas and Houston, Texas. Yes, Jake is one of the few presidents of our Class. The following Saturday, Fran and I spent the afternoon and evening in New York with Jerry and Lib Patterson who were in town to celebrate their 10th wedding anniversary. — C. H. SPRINGER, *Secretary*, Firemen's Mutual Insurance Co., 420 Lexington Ave., New York 17, N. Y.

• 1947 •

The Grand Ballroom of the Waldorf Astoria was the venue of the dinner given by the Corporation last January as a tribute to Karl Compton, as last month's issue of The Review reported at length. In many ways this black-tie affair was a stronger drawing card for Alumni than the annual festivities in Boston each June — particularly insofar as '47 is concerned. I saw Classmates there that I haven't seen since graduation, and that is going on nine years. I shared a table with Gil Parker, Carl Newman, John Martin, Dick Mooney, Dick O'Donnell, Bud Palitz and Art Schwartz. The Class of 1946 produced Dave Black, Bob Fried, Bob Hoffman, Don Hurter and Lew Mann, and at the table for 1948 I recognized Ed Newdale, John Dugundji, Al Davidson, Ken Parmelee, John Reid, and Maurice Rifkin. The one unhappy thing about the whole affair is that all I can do is mention names. There was much chatter at the table during dinner, but no time really for me to take notes about anyone, and afterwards there were many hasty departures to catch the last Long Island train. Maybe those mentioned above will now write long and interesting letters about their affairs of the last nine years, which will be gratefully reproduced in this column.

Other news this month is also extremely limited. Union Carbide and Carbon Corporation announces the appointment of Watt Webb as Research Metallurgist in the Chemical Research Group of the Electro Metallurgical Company, a Division of U. C. and C. Watt received his Sc.D degree at M.I.T. last summer on an Allegheny Ludlum Fellowship; and in the summer of 1953, he held an Overseas Fellowship at Metallwerke Plansee, Reutte in Tirol, Austria. Also in the metallurgical field comes the announcement from Chase Brass and Copper Company that Olavi Huhtald has been appointed superintendent of utilities at the Metal Works Plant in Waterbury, Conn. Olavi will be in charge of the electrical, crane repair, and plumbing departments, as well as of the power house. Stanley Hollander has been elected president of the appliance firm of Hollander and Company, Inc., in St. Louis, Mo. He has served as vice-president for the past six years. Alan McClennen addressed a meeting at the West Bridgewater Town Hall on the problem of flood control. Alan is Director of Planning in the Massachusetts Department of Commerce.

A son, Richard Stuart, was born to Dick and Doris Scheuing in Lynbrook, L.I., N.Y., last December 7. Please let us have your comments, ideas, suggestions, etc. on our tenth reunion next June. Also, please let's have some news. — CLAUDE W. BRENNER, *Secretary*, 1470 Beacon Street, Brookline 46, Mass.

• 1952 •

Hello. Back Again? No idle small talk this month, just news. I just returned from Bob Walsh's marriage to Carol Teston in Plainfield, New Jersey on February 4. Bob and Carol are settling down in a little apartment in Plainfield, while Bob is holding down a job at the Calso refinery in Perth Amboy, N. J. as a troubleshooter. Losing the wise sage of the 1952 Bachelors Unanimous was quite a blow to us and has left us quite speechless.

Serving as ushers at Bob's wedding were Neil Curlee and Bill Chandler. Neil is presently working at the Westinghouse atomic reactor plant just outside Pittsburgh and is also well on his way to his Doctorate at the University of Pittsburgh in Mechanical Engineering (shades of Course XV). Neil has become the very proud father of three children since June 1952 — I think he said they were two and one-half, one and one-half, and four months old. He also mentioned that there were several other '52 men at the plant he was working in; I'm afraid that only Tom Jannsen's name comes to mind at present.

Bill Chandler and his wife and baby daughter have become loyal central Jersey residents. Bill is working for the Esso people in Linden, doing "real-live" engineering work.

Other Classmates with the Esso company are also making news. Gerry and Anita Laufs, of the Baton Rouge, La. Esso clan, have just had their second child. This one is a girl named Brenda Leigh, born on January 21.

Several weeks ago I was very surprised to have Joe Moore drop into my room. It seems he was in the Boston area with a Humble Oil college interviewing team. Joe and Glenna and their two (or is it three by now, Joe?) children are now happy residents of Baytown, Texas. Joe is doing equipment design work for the Humble (Esso) refinery there

Also doing chemical equipment design work and fathering children was Howie Zasloff. His wife Delly had a baby girl named Randy Heller on December 27. The Zasloffs are now in Scheveningen, Holland, where Howie is working for the Lummus Corporation.

An interesting little note was received from Master Daniel Downs Sullivan, III, no doubt a most precocious youngster, saying that he now has a new sister, named Catherine Louise. The note further states that while the new arrival might not be M.I.T. material, there's always Wellesley.

Some other words of wisdom from the old married folks of the Class include the following from Bill and Jean Morton: "I will be getting my Master's degree from the University of Michigan in February (1956) and expect to be going to work for G.E. in their market research program or their business management training program. I spent a most enjoyable summer working for General Motors under their College Student Internship Program, a rotational training program in accounting. Little Bill is 18 months old today and is a cute blue-eyed imp walking and climbing on everything."

And from Bill and Emily Dunn: "We will both graduate from Stanford in the middle of March – I with my master's in Business Administration, Emily with her bachelor's. Now job-hunting. Even back in the Midwest. Ran into Sam Mitchell in one of the little rooms at the New Frontier in Las Vegas. As you probably know, Sam's working up in Idaho Falls, Idaho."

And a very strange and wondrous Christmas card from Ed Schwartz with a Japanese motif: "This Christmas finds me at Camp Fama, Japan, the location of the headquarters for the Army Forces in the Far East. I have been over here since January and am due to leave in June for separation. Ted Uhler happens to be stationed at the same post and we get together for a beer almost daily." In answer to your question, Ed, Bob Briber's at the Institute and Dick Kilcup up in Peabody, Mass., selling real estate and rolling up the profits.

Before I forget about it, in my recent meanderings around the Boston area, I've run into Art Turner, who is now studying for his Master's degree in Electrical Engineering at the Institute after a three year sojourn at Ft. Devens and Washington, D. C. Also Dick Lacey, who is about ready to receive his doctorate in Physics also from M.I.T.; I guess the exact date is June. Nick Haritatos will be getting his doctorate in Chemical Engineering at the same time. Rumor has it that Bob Schaefer will be returning to Tech during the summer for some further educational pursuits. And it's Dr. Bob Lurie nowadays (I'm only several years late with this news), but still papa to his little family. Jim Warren is here at the Business School. Since June 1952, Jim has been in the Army in an Operations Research Group at Aberdeen Proving Ground and then doing similar work at the Glenn L. Martin Aircraft plant in Baltimore. John Dieckman and Ed Sevcik both wearing the pallid expressions of first year B-School men. Basking in the ease of the second year here are Jack Copenhefer (for whom wedding bells will be ringing in June), Lou Karvelas, Dave Weber, Bob Danforth, Jim Reese, Sandy Kaplan, Joe Kotrich, and Walt Dietz (there's bound to be somebody that I forgot). Walt just back from Pennsylvania reports having run into Ken King there. Ken's working for the Pennsylvania Salt Manufacturing Company in Philadelphia and one of the sturdy few bachelors left. Nick Melissas, Herb Eissenberg, and Bob Briber were seen at the Midwinter Alumni Conference. Nick has been converted to see the Course XV light; he's very happy with his work as Assistant to Dean Brooks at the School of Industrial Management. Herb's still aglow from his recent engagement and busily spends his days in managing a business he owns with his brothers in the home construction field. He has Stan Sydney as one of his top level engineers and designers. Bill Hoey now back in the Boston area working for his master's degree in City Planning at Harvard. Still single, he says Burge Jamieson now a mister again and job-hunting in the Boston area. Dana Ferguson working in technical sales for Revere Copper and Brass out of their New York office in Newark, N. J.

And from the newspaper clippings: Wally Lebowitz elected to Alpha Omega Alpha, national honorary medical society. Wally is studying at the present time at the Boston University School of Medicine, from which he expects to receive his M.D. in June. He then plans to undertake post-graduate training in internal medicine.

Catching up on some old marriages. Back last August, Patricia McNamara was married to Larry Maibach in Wollaston, Mass. No information of the present whereabouts of the Maibachs or what Larry is doing nowadays.

On November 19, Sally Cummings and Jim Brownell were wed in Wakefield, Mass. After a two year stint in the Army, Jim is now manager of the Air-Conditioning Department of the Ultrasonics Corporation in Cambridge. Art Swanson's name appears as one of the ushers.

During December, the engagement of Priscilla Potter to Dick Jenney was announced. A summer wedding is planned. Dick is now studying for his doctor's degree at the Institute.

Important letter from Bob Briber: "John Fitch, the John McClelland of WHDH, now has the shift from 3 o'clock until midnight and can often be heard on the 'Cloud Club.' You can never tell where a Classmate will turn up. Ricardo Haegler was in Boston last summer on the last leg of a trip from Rio to Switzerland to New York and Boston and back to Rio. He is working for Liquefied Petroleum Gas Company in Brazil and from the stories and affluence and knowing the man himself, I am sure he is doing remarkably. The Tech Book Store is probably one of the most productive places for Class meetings. In the past two weeks I have seen Lou DiBona and Arnie A Kramer there. Lou is selling for Westinghouse in the Boston area and is in the process of building a house for his little family. Arnie is working in his father's furniture store in Worcester.

"Bob Frye is still in khaki and you can bet he is enjoying every bit of it. He has achieved the magnificent rank of corporal and is extremely proud. I'm afraid I've forgotten how many seconds, minutes, and hours he said he had left in the Army."

Typewriter ribbon is practically worn out; so so long until next month (or maybe the month after that). – STANLEY I. BUCHIN, *Secretary*, Chase D-41, Harvard Business School, Boston 63, Mass.

• 1953 •

The news this month runs the entire circuit from births, to marriages, to death. I did not know Wilfred Champlain personally, but as a fellow Classmate I was saddened to see the notice which reported his death on August 25, 1955 as a result of an airplane accident. No words seem appropriate when a death occurs at so early a time after our departure from Tech.

A note which came in the mail this morning displays the other side of the coin of life. Ralph and Glo Anglin have a daughter, Jessica who was born on January 22. This makes the third child and second girl for Ralph and Glo – Robby, the boy, is about six years old and Suzie must be somewhere around two or three years old. Congratulations Ralph (you too, Glo ! !).

Notes from various of the Army's information officers indicate that three more of our Classmates have been promoted from the rank of second lieutenant to first lieutenant and have therefore just about completed their two year tours. (The time in grade required for a promotion from second to first lieutenant is eighteen months.) Leonard F. Menice received his promotion on January 5. Leonard is the doctrines officer of the research and curriculum division of the ordnance guided missile school in Huntsville, Ala. Harry Krimbill also threw away the gold bars in January at Fort Dix, N. J. Harry is assigned to the 86th Engineer Construction Battalion and is married to the former Jane P. Cleveland of Auburn, Me. Jane and Harry have a son, Harry Michael. John Rutigliano, who completes the trio, is the assistant operations officer of the 87th Engineer Construction Battalion at Fort Belvoir, Va. The job recalls many enjoyable yet often frustrating personal experiences when I held the same position with the 2nd Engineers in Korea. One's prime mission in the job is to act as a go-between for the battalion commander and his company commanders. As I recall, the supervision of the training for the various companies in the battalion was also the responsibility of the Assistant S-3.

In the last issue I mentioned the possibility of seeing Jul Greenebaum and Gene Richter at the Mid-Winter Alumni Meeting held at Walker Memorial on February 1. In addition to having dinner with Jul and Gene, I talked with Joe Cahn who is working in the Boston area and has been married for some eight months – slipped up on finding out the name of Joe's wife.

Part of the evening's program at the

meeting included the showing of a film giving some general data on the development and operation of SAGE – the electronic system developed at Lincoln Laboratories to aid the Air Force in providing for our air defense. I believe that one of the star performers in the picture was Bob McDonald (at the time a lieutenant in the Air Force). Correct me if I'm wrong, Bob!

The only note from the industrial world concerns Benjamin Williams who is now a member of the technical staff of the Aerodynamics Department of Hughes Research and Development Corporation in Culver City, Calif.

In August of last year James Crowley and Lawrence Odence were married. Jim to Terese Darby, a graduate of Chandler School for Women, and Larry to Susanna Bernard, a graduate of Sweetbrier College. After a wedding trip to Canada Jim and Terese parked the car in Philadelphia where Jim is attending the Wharton School of Business and Commerce at the University of Pennsylvania. Although Larry is also going to the Wharton Business School, he and Sue have picked Moorestown, N. J. for their home – no parking places left in Philly, just like Boston!

An old friend of mine from Danbury High School, Ellen Eckberg, has married Robert O'Connell. Ellen attended the University of Connecticut and Crandall's Secretarial School. Bob is a research engineer at Tech and is also attending Boston College Law School. My hat (a Danbury Hat!) goes off to him for this combination. I have a full schedule just attending law school let alone working too. – VINSON W. BRONSON, JR., *Secretary*, 18 Mellen St., Cambridge, Mass.

• 1954 •

There seems to be something about California that has a pronounced effect on Tech graduates. A large percentage of the mail from members of the Class of '54 comes from that western state, and these letters all read as if they were written by the Chamber of Commerce out there. A few months ago we had a letter from Coley Bresee extolling the virtues of California, and now come two more, with the same general theme. Tom Bastis writes that he, Coley and Emil Krejci, with their wives Ruth-Alison, Jan and Shirley, respectively, get together regularly for everything from bridge games to taffy-pulls. The taffy-pull business occurred on New Year's Eve, and Coley, by the way, is still "counseling troubled airmen" at Parks Air Force Base. His St. Bernard, Cosmo by name, now weighs more than 150 pounds and is still growing, according to latest reports. Emil is on a "sort of lend-lease set-up" to the National Advisory Committee for Aeronautics at Moffett Field, where he plays around in the wind tunnel. Tom himself, when he isn't drumming up settlers for California, is a development engineer for Kaiser Aluminum in Oakland. He bought himself a house out there last November which is small and old, but has a "great view." Tom invites any and all members of the Class who happen to be in Oakland to drop in at 2464 Alida Street. One other item in Tom's letter gives us the news that Jim Astrue is now in flight training at Spence Air Force Base. Before he joined Uncle Sam's team, Jim was with the Nuclear Metals Company.

The other letter from California is from the "Caltech contingent," courtesy of Howard Brody's wife Lois. Howard, Henry Myers and Jack Overley are all whooping it up in the hallowed halls of the California Institute of Technology. Howard and Henry are working on the synchrotron and Jack is teaching freshman physics. Howard and Lois, by the way, were married way back in June, 1954, after their respective graduations from M.I.T. and the University of Syracuse. Lois also reports that John Melavas, who had been stationed at Edwards Air Force Base, is now at Wright-Patterson Base. Speaking of Wright-Patterson, George Perry reports through Tom Bastis that in addition to himself and John Melavas, the following are now stationed there: Bruce Backe, Chuck Burnham, John Giancola, Larry Holmes, Ron Lovasz, Stu Smith, Pete Stone and Tony Turano.

Matt Baczewski writes that he is now Ground Equipment Officer at Sampson Air Force Base, New York. Before he donned the Air Force blue, Matt was working on a master of business administration degree at the University of Pennsylvania. Lt. J. Scott Mudgett married the colonel's daughter in February. He and the former Barbara Ann Buttermore are now at the Army Chemical Center in Maryland. Paul Rudzinski, who is married to the former Jean Riley of Medford, Mass., was recently promoted to first lieutenant at Fort Dix.

Dean Jacoby sends along quite a few items from down Tulsa way. George Eppler, who is stationed at Patrick Air Force Base in Florida, reports that Al Tweedie is on an Air Material Command type assignment with the Air Force in Europe, and that Jim Baker was married in February to a West Roxbury girl, name unavailable at present. Jim is presently teaching something somewhere for the Army, according to the latest vague reports. George says that he himself is working on the missiles program down in Florida. Other bits of gossip include the fact that Art Haines and his wife Beverly are living in North Carolina where Art is teaching at Guilford College. Bob Law is hopping around from ship to ship in the Atlantic Fleet working on Special Weapons. Barbara Beyer and Roger Black'56 were married and are living in Brookline, Mass. Will Fiske and John Flender are in the Air Force, stationed at Hanscom Field in Bedford, Mass. Al Ward has managed to avoid Uncle Sam and is now working as assistant production manager at Steven's Manufacturing Company in Mansfield, Ohio. Bill McTigue is with the Corps of Engineers, and is currently working out for the Olympics in "pair oared shells without cox" (technical information courtesy of Ron McKay). Dean himself made a whirlwind tour of the east in January, and saw Ron McKay and Warren and Jeanne Davis in Washington, Paul Valerio and Dick and Charlee Wallace in New York, and Bob Anslow in Cambridge. And finally, I am very unhappy to have to report the death of John Heath, who succumbed to polio after a very short illness. Keep the news coming. – EDWIN G. EIGEL, JR., *Secretary*, 3654 Flora Place, St. Louis 10, Missouri.

• 1955 •

It is with deep regret that we report the death of Russell Bockes, a Physics graduate of 1955. Russell died on December 17 of a heart attack sustained while lifting weights in the Boston YMCA gymnasium.

On the other side of the ledger we hear that Donald Welsh recently married Barbara Anne Moir of Wellesley Hills, Mass. and Wheelock College. Congratulations, Don!

We have quite a few tidbits about our military brethren this month. Donald Foster is now in Germany with the 8th Ordnance Battalion. He entered the Army last May and completed basic training at Fort Dix. Frank Perkins is with the Army Engineers at Narsarssuak Air Base in Greenland, and Robert Cruickshank is also on top of the world at Thule Air Force Base. The above two plus Robert Moll and Murray Friedman were graduated in November from the Engineers School at Ft. Belvoir, Virginia.

On the civilian side, Alan Dana is now at Johns Hopkins University Medical School. Roy Salzman graduated in February in Course XV to make him a (S.B.)^2. He is now working at Remington-Rand Univac in Philadelphia, and plans to enter A. F. Flight training in the summer or fall. Rumor has it that he is engaged–how about the details, Roy?

Ed Ronat is now at RCA in Camden. He is planning to return to M.I.T. for a Ph.D. in theoretical physics.

Chan Stevens had a bit of trouble with a pair of skis and a tricky slope in January, and was on crutches for a time. Chan points to Ollie Johns, the president of '56, who is also on crutches, and calls it just an occupational hazard!

The '55 attendance at the Mid-Winter meeting was not what we might call overwhelming. Representing us were Pete Toohy, Sandy Goldman, and Dennis Shapiro. The seating was arranged in Walker according to class. Being the neophytes you can guess that we were at the rear behind one of the large pillars. It was a worthwhile event, and we hope that next year more will attend.

From the Nasitir Newsletter: Al Glueck is still grinding away at old P. U. (Princeton), and hopes to take in South America this summer. Ed Pulsifer is now at Fort Devens, and is sporting a new Nash. This winds up the column for this month. Let's hear from you so we can make this bigger and better. – DELL LANIER, *Secretary*, 3011 Vernon Place, Cincinnati, Ohio. L. DENNIS SHAPIRO, *Assistant Secretary*, Room 10–483, M.I.T.

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See for yourself some of M.I.T.'s contributions to the subject of the morning. Visit the Biology and Food Technology Laboratories, the X-ray and Electron Therapy laboratory for cancer treatment and the O.N.R. Van de Graaff generator, to name a few.

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Come to the first On-Campus Alumni Day Banquet. Spend a social hour with other Alumni and their wives on the green grass of Briggs Field. Enjoy a filet mignon dinner in Rockwell Cage, sitting with your Classmates and their wives. Share in the evening's fun with gifts for all and prizes galore.

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MONDAY, JUNE 11, 1956

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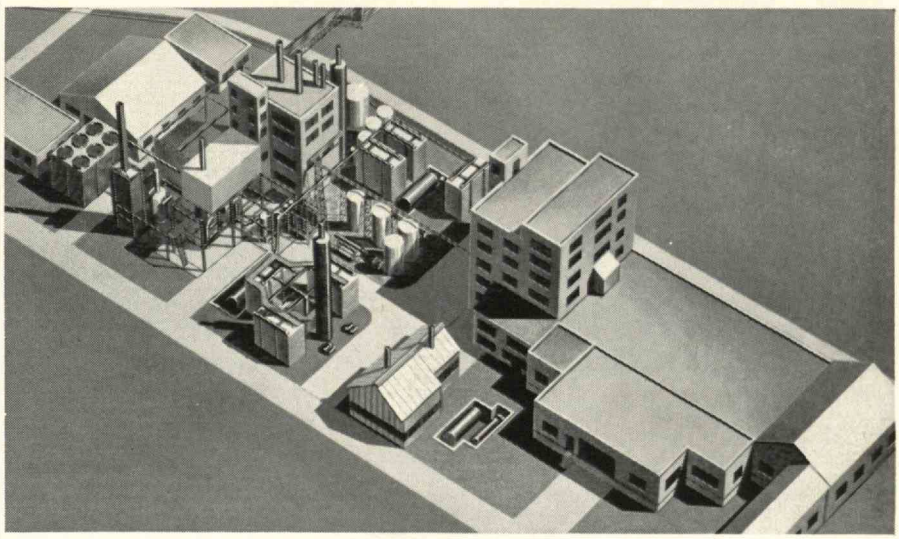

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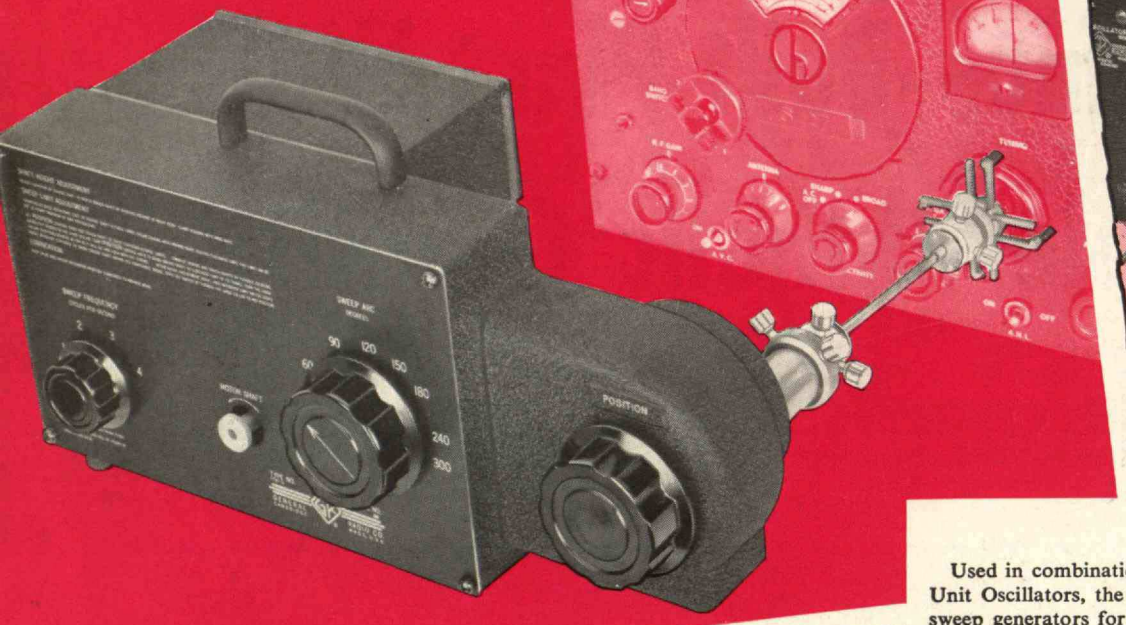

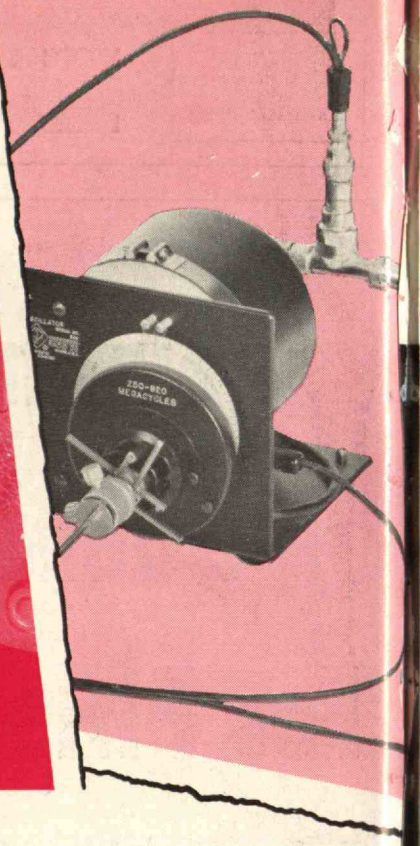

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